FEEDSTUFFS

The Weekly Newspaper for the Feed Industry

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Feed Men Optimistic, Business Making Comeback

By FRED E. TUNKS
Feedstuffs Staff

Many feed manufacturers were definitely optimistic this week for the first time in 3-4 months. Formula feed men in nearly all regions of the nation reported that business was making a comeback.

But, unfortunately, some of the increased business has been at the expense of southern and midwestern and eastern livestock and poultry producers who have found the going rough because of snow storms which have brought about shortages of livestock forage and other feeds.

Some feed men as well as producers have been seriously hurt by storms in poultry areas. Also, the storms interfered with feed distribution.

However, the unseasonable weather did stimulate feed demand in many sections.

At the same time, though, it isn't the only factor that has created a better climate for many feed firms.

- Feeders are in a much better mood to buy formula feeds because they have seen improved prices in beef cattle, hogs, poultry and eggs.
- The spring feeding season is just around the corner—so, as most manufacturers say, feed business should just naturally make some gains along about now.
- Feeders and feed dealers have let their feed stocks run low, and now they're beginning to replace those depleted supplies.
- Sharp rises in prices for many ingredients were noted this week. And feed men believe this trend will move

(Turn to OPTIMISM, page 113)

Storm Damage to Poultry Industry Amounts to Millions

By Special Correspondents

"It might be the best thing for many chicken growers to face the facts and get out of the business entirely."

That statement by a major Georgia broiler producer, Tom Folger of Dahlonega, expresses the gloomy side of the situation which the southeastern broiler industry is in because of recent multiple snow and ice storms.

The storms, pretty general in the Southeast, and scattered elsewhere throughout the nation, have affected significantly the production of livestock and poultry and how those animals are fed. North Georgia, one of the big broiler-growing areas of the country, apparently was hit the hardest. Damage in that area has been estimated in the millions of dollars.

Heavy snow has created condemnation, hatchery and housing prob-

(Turn to STORM, page 113)

Allied Mills Acquires Fant Feed Business

CHICAGO—W. E. Lenz, president of Allied Mills, Inc., announced this week that the corporation's subsidiary, Allied Mills, Inc., of Texas, has acquired the business of the Sunglo Feed department of Fant Milling Co., Sherman, Texas.

Details of the sale were not announced, but Mr. Lenz stated that Sunglo and Big Value Feeds, previously manufactured by Fant, will now be made and shipped from the Allied Mills plant in Fort Worth.

Allied Mills entered the feed trade

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FEEDSTUFFS *Features This Week*

UNEXTRACTED RAW SOYBEANS—Two Rutgers scientists report results of an experiment testing unextracted raw soybeans as a protein source for laying hens. Page 18.

NEW MILL—Operation of a new Iowa feed plant is described on page 26.

POTENTIATION—The potentiation in the mass medication of poultry and swine with feed containing the tetracyclines is discussed on page 94.

ANIMAL POPULATION—A table showing the U.S. livestock and poultry inventory by states on Jan. 1 appears on page 100.

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New, More Specific Approach to Protein For Layers Outlined

By JAMES W. MILLER
Feedstuffs Staff

WASHINGTON — A new, more specific approach to protein levels and amino acid supplementation of laying hen rations was proposed at the Maryland Nutrition Conference here March 17-18.

The suggestions came in a talk by Dr. G. F. Combs of Maryland on protein and energy requirements of laying hens. He described a method which permits calculation of both caloric intake and amino requirements. The report also related various factors to the protein and energy requirement.

It isn't a question of whether methionine is to be added to the laying ration, said Dr. Combs. The question is what level of egg production is to be supported by the diet.

(Turn to PROTEIN, page 113)

Spring Farrowings Off as Predicted

By JOHN CIPPERLY
Feedstuffs Washington Correspondent

WASHINGTON—The U.S. Department of Agriculture's March pig crop report very much confirms last December's estimates by showing a reduction of 13% in the number of sows farrowing in the Corn Belt during the spring period (December through May).

At the same time, the report has indications that the swine production decline will level off later this year, and that output again will begin to rebuild.

(Turn to FARROWINGS, page 113)

Egg-Type Chick Output Still Down Sharply

WASHINGTON—The hatch of egg-type chicks may pick up later in response to prospects for improved egg prices, but, as of now, hatchery production of chicks for laying flock replacement still is running sharply below a year ago as the industry reacts to recent low egg prices.

Production of egg-type chicks in February was down 38% from 1959, according to the U.S. Department of Agriculture. And for the important month of March, the hatch may be down about as much, based on eggs in incubators on March 1.

Marked cutbacks were indicated in just about all areas.

Production of egg-type chicks in February totaled 38,336,000, the smallest for the month since records began in 1955. The previous low for the month was in February, 1957, when 56,269,000 egg-type chicks were hatched. The production of egg-type chicks during the first two months of 1960 totaled 62,023,000, compared with 97,237,000 during this period last year. This is a decrease of 36%.

Meanwhile, production of broiler-type chicks was up 7% from February, 1959, totaling 160,487,000. Production for the first two months of 1960 increased 6%, totaling 321,196,-

(Turn to CHICK OUTPUT, page 113)

Proposed Grain Storage Rate Cuts Branded 'Unacceptable'

By JOHN CIPPERLY
Feedstuffs Washington Correspondent

WASHINGTON — Trade reaction to a proposed list of drastically reduced grain storage rates was decidedly unfavorable, saying, in effect, that the U.S. Department of Agriculture reasoning concerning the cause of the proposed rate reduction failed to take into consideration cost of capital investment in this industry.

The proposal for the rate reductions was submitted by officials of the Commodity Stabilization Service at the final closed meeting of USDA officials and trade representatives of the grain warehouse industry. The rates would apply for the next Uniform Grain Storage Agreement year starting July 1, 1960. (Details on the USDA proposal and industry statement can be found on page 6.)

While stating that the negotiating committee had not had ample time to analyze the reasons submitted by

(Turn to STORAGE RATE, page 113)

AFMA Seeks Broad Support Of Change in Drug Policy

CHICAGO — The American Feed Manufacturers Assn. this week took steps aimed at putting a broad agricultural industry support behind a mutual effort to "bring about a practical and realistic policy to govern the use of agricultural chemicals."

The AFMA called a meeting held March 17 in Chicago, with some 20 organizations representing a broad cross-section of agriculture invited to attend.

(A report on the results of the meeting will be made to association members and the public next week.)

In connection with advance announcement of the meeting, an AFMA bulletin this week said: "AFMA firmly believes that it is time for all segments of the food, feed, related industries and others interested in the agricultural economy, to voluntarily join in a mutual effort to bring about a practical and realistic policy to govern the use of agricultural chemicals. This is possible and

(Turn to AFMA, page 113)

Hales & Hunter Firms Now in One Unit

CHICAGO—Hales & Hunter Co., Chicago, has announced completion of a program of reorganization of its several companies into a single unit and has added five members to its new board of directors, according to a joint statement by William M. Hales, chairman of the board, and William H. Garvey, Jr., president and chief executive officer.

The firm manufactures Red Comb

(Turn to HALES & HUNTER, page 113)

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EDITORIAL STAFF—George L. Gates, Editor; Roger Bergiund, Managing Editor; John Cipperly, Washington Correspondent; Emmet J. Hoffman, Merchandising Editor; James E. Sharon, James H. Ross, Fred E. Tunks, Vermayne N. Sundem and William A. Bentzin, Editorial Assistants.

WASHINGTON CORRESPONDENT—John Cipperly, 604 Hibbs Building, Washington, D. C., Telephone, Republic 7-8534.

ADVERTISING STAFF—Wilfred E. Lingren, Advertising Director; Carl R. Vetter, Advertising Department Manager; Bruce A. Kirkpatrick, Advertising Production Manager; Leland C. Hubert, Assistant Advertising Production Manager; R. Dale Swenson, Promotion Manager.

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Top of the Hopper

AN EDITORIAL WE PUBLISHED a few weeks ago on the subject of "over-extension of extension" is the target of two letters, appearing on page 8. One is from the Connecticut associate county agent who authored the bulletin on which we commented and whose reaction to the editorial we sought. The other letter, taking sharp issue with our opinion, comes from a reader in California.

The points of view expressed by these gentlemen are well-stated, and while they represent a directly opposite position to that of our editorial, we feel they deserve the attention of other readers. Comments from others, by the way, would be most welcome.

These opinions speak for themselves and, rather than attempt an item-by-item rebuttal, we wish merely to restate and slightly amplify two of the points we tried to make in our editorial:

1. Providing feeders with ingredient price lists, without stating on what basis they are quoted, can be misleading and could place the feed man in a difficult position in explaining market fluctuations, shipping and other handling costs.

2. A college formula can do a good job, but a feed formulated by a feed manufacturer also can. In many instances his up-to-date knowledge of ingredient markets, his skill in buying and choosing sources of nutrients make important cost savings possible. Also, the cheapest feed is not always the best feed, in terms of food production costs.

3. College extension departments, we feel, should not in effect "choose up sides" in recommending one source of feed over another. They should provide the basic information needed by feeders so they can make an intelligent decision as to which source best suits their needs.

The proper role of extension could be debated extensively, but this perhaps is not so important to feed men as recognizing the attitudes sometimes expressed about the industry, such as this: "Certainly he (the farmer) can't expect help from a multi-million-dollar industry which is already competing with him by growing broilers and producing eggs."

This extreme view, and some others expressed in the letter from the Connecticut county agent, are worth pondering.

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IN MAKING HIS FORCEFUL ARGUMENT against the restrictive nature of present federal food regulation (Feedstuffs, March 12), Dr. Earl L. Butz, Purdue University dean of agriculture, emphasized the benefits provided consumers by agricultural research. "If the present philosophy had been prevalent 10 years ago, we couldn't have made the progress we have made," he said. Food is cheaper today than it has ever been in terms of hours of work required to purchase it, he pointed out. For example, 20 years ago milk cost 12¢ quart, but this represented pay for 15 minutes of work. Today, while milk is about 24¢ a quart, it can be purchased for the equivalent of 8 minutes of work.

Agriculture and industries serving it must create a positive image of more and better foods at lower costs in order to combat unwarranted restrictions of chemical use which discourage research. Dr. Butz's speech, presented at the Grain & Feed Dealers National Assn. convention, was one of the most direct and forceful arguments against the Delaney restrictions we have heard. It will be published in full in Feedstuffs, and reprints will be made available to those who wish to use it persuasively in the appropriate places.

(Turn to TOP OF THE HOPPER, page 109)

How's Business?

AN EVERY WEEK REVIEW OF FORMULA FEED BUSINESS VOLUME, INCLUDING PRICE, SUPPLY AND DEMAND TRENDS

Low inventories of feeds disappeared very quickly when severe weather conditions, covering much of the central U.S. and reaching deep into the South, stimulated feeding activity, and feed manufacturers in many regions this week reported that feed business was making its first major advance of the current season. And because feed manufacturers were actively seeking supplies, the ingredient market was generally quite strong. The greatest price strength was noted in millfeeds and animal protein feeds. Improved livestock, poultry and egg prices began to encourage more feeders to buy formula feeds. Indexes and ratios which are important to the feed industry edged upward. The index of wholesale feedstuff prices advanced 1.1 points to 79.9, but remained well below the 86.1 mark of a year earlier. The feed-grain index went up to 65.3 from 64.8 the previous week. The new level was just slightly under the year-ago index. The hog-corn ratio, at 13.5, was .2 ahead of the figure for a year earlier, and was above the 12.9 ratio of a week earlier. (Feed markets in detail on pages 110-112.)

Northwest

The calendar says so and so do glowing reports from most feed manufacturers in this region. Spring is here.

Apparently, feed business and the temperature will rise together. And that tandem development is as it should be, formula feed people say.

This week is the first in the long, almost dead winter in which there have been any substantial indications of a major improvement in feed sales.

There were some formula feed men who didn't have such optimistic reports to make, but most of them contacted from this corner said their feed business this week was significantly improved over last week. Although gains were recorded in feed production and sales, business was still under or just even with the level of a year ago. But, in general, the climb from the season's low level of volume to the peak level has been tougher this year than it was the preceding year.

The tone of general improvement seems to be applicable to nearly all types of feeds. Business was reported to be good in beef and dairy cattle feeds, hog feeds and poultry feeds.

Feed dealers were reported to be encouraged because they believe that "the feeling out in the country" is better. That is, farmers don't seem to be grumbling quite as much about egg and hog prices, which have pulled up from the bottom, so they're more willing to talk to feed dealers and their salesmen.

But the better prices won't solve one of the long-run problems of the feed industry until perhaps next fall when hogs are shipped to market and new crops are harvested. "If farmers only had some money we could sell some feed," said one feed man. This statement pretty well tells the story of how the credit situation is hurting feed business.

The unseasonable cold and snow spells of late seem to have put some spark into feed sales, and the snow in particular has had a direct effect on feed manufacturing in some cases. For instance, an official of a feed manufacturing firm reported the company had to close down its Iowa mill for a day because of snow storms.

Since most ingredient prices were very much on the strong side this week, manufacturers will be marking their feeds up an average of $1 or so a ton. And it is believed by some in the industry that the ingredient market climb will help push formula feed business upward.

Southwest

Formula feed business tapered off a little this week with the heavy snowfall which covered a large share of the Southwest being partly responsible. Carlot shipments held up very well but poor road conditions cut heavily into truck business. Most mills are experiencing a good five-day run.

Cattle feed business and hog supplements are still contributing a large share of the volume, while egg feeds are about steady. Pig and chick starters are moving better and the trade is hopeful they will continue to improve.

Most price lists will be up with soybean meal, millfeeds, cottonseed and grains higher.

There is a persistent feeling among some trade sources that the stocks of wet corn in the country will prove a serious drawback to feed business as soon as the snows start to recede. This is considered by some to be a hurdle to be faced before normal spring business gets into full swing.

Northeast

The preceding week's upturn in formula feed demand failed to hold and manufacturers had to trim their running time a little.

The sales pattern is changing a little, with complete feeds gaining on dairy mixes as farmers run low on grains. Egg mashes and growing feeds are coming along good, and there has been some turnover in turkey feeds.

Broilers are holding up pretty good at levels where producers can make a profit. Prices in the East range from 17½ to 18.9¢ lb. In the western New York area, the supply of live poultry was barely adequate to meet a moderate demand, and the market was fully steady. Eggs have firmed up with the advent of the Lenten season.

The ingredient market was called "out-of-joint." Corn was about unchanged. The West is offering corn but this region has little to offer, which makes for a wide range in prices. Barley was off 1¢ and oats and feed wheat were unchanged.

Central States

For the first time since fairly early last fall formula feed manufacturers this week were reporting that sales volume was up even with and actually ahead of the corresponding week the year previous. Without question, this was the closest approach to actual optimism that has cropped up for many a week with a very definite pickup not only in inquiry but in actual sales volume. There is considerable unanimity of opinion about March bearing promise of being the best month in a considerable period of time.

Country dealers must have permitted their inventories to become rather well depleted, and replenish-

(Turn to MARKETS, page 115)

Specialists at Peter Hand evaluate latest scientific developments—even operate a 450-acre farm where new formulations are tested on a commercial scale.

Peter Hand Proven Premix packages contain vitamins, antibiotics, anti-oxidants. One bag fortifies one ton. Available for poultry, swine and ruminants.

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But he discovered that Peter Hand Premixes are more economical in the long run—for three reasons. First, the specialized personnel and equipment that are needed added to his operating overhead. Second, because his production people were not used to handling micro-ingredients, he found feeds coming off his line dangerously underfortified at some times, expensively overfortified at others. And finally in this particular case, the 2% saving in shrinkage and handling was translated into thousands of dollars over the course of a year.

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Number of Layers Is Down 3%

WASHINGTON—The number of layers on farms on March 1 was about 3% down from the number at the same time last year, the U.S. Department of Agriculture reports.

The total of 305,301,000 compared with 316,353,000 on March 1 last year, USDA notes.

Thus, with the currently smaller number of layers and along with the outlook for a sharply reduced hatch of egg-type chicks for replacement flocks, prospects for further gains in egg prices are good.

All regions of the country showed decreases in layers except the South Atlantic and the West. Decreases were 8% in the North Atlantic and West North Central, 6% in the East North Central and 1% in the South Central. The estimates of layer numbers were up 5% in the South Atlantic and the West.

Extremely cold weather was blamed for a drop in the March 1 rate of lay from the previous year. The rate of lay was 58.3 eggs per 100 layers, compared with 59.8 eggs on March 1, 1959. The rate was below last year in all regions, except the North Atlantic, which was the same.

Farm flocks laid 5 billion, 82 million eggs in February, 1% fewer than in February, 1958, but up 1% from the 10-year average. Production, compared with last year, was up only in the South Atlantic (9%) and the West (6%).

Hens and Pullets of Laying Age and Eggs Laid Per 100 Layers on Farms March 1

Year	North Atlantic	E. North Central	W. North Central	South Atlantic	South Central	Western	United States
			Hens and Pullets of Laying Age on Farms (thousands)				
1949-58 (average)	54,876	48,502	94,347	32,635	52,619	34,042	336,020
1959	52,130	59,808	85,840	34,713	45,853	38,009	316,353
1960	47,877	54,463	79,299	36,410	45,494	39,758	305,301
			Eggs Laid Per 100 Layers on Farms (number)				
1949-58 (average)	56.1	55.6	57.1	54.0	51.7	57.3	55.5
1959	59.0	59.9	61.7	58.7	55.5	62.3	59.8
1960	59.2	59.1	59.6	57.6	51.5	61.6	58.3

Business Dealings Of CSS Director Being Examined

WASHINGTON—Earl C. Corey, recently retired head of the regional Commodity Stabilization Service office at Portland, Ore., and a veteran of long government service, currently is the center of a controversy stemming from "conflict of interest" policies.

Essentially, the "conflict of interest" issue concerns the prohibitions set down against governmental officials, in this instance those with the U.S. Department of Agriculture, having private business interests which might further their own personal positions through, or to the detriment of, their governmental offices.

In Mr. Corey's case, the examinations involve investigation of his partnerships in a grain warehousing firm which received government payments for storage and in a malting company, all allegedly while serving as regional CSS director at Portland.

To date, the actions being taken involve:

- A move by the Department of Justice to bring the matter involving Mr. Corey before a federal grand jury to determine what—if any—criminal actions might be involved;
- Investigation of the Senate subcommittee headed by Sen. Stuart Symington (D., Mo.) into Mr. Corey's personal dealing with grain firms while in government office;
- Some heated exchanges between Ezra Taft Benson, secretary of agriculture, and Sen. Symington. Mr. Benson has scored Sen. Symington for what the secretary terms "scheduling hearings on the matter" while Mr. Corey's case is pending with the justice department. Sen. Symington, in reply, is quoted as saying that the

(Turn to CSS DIRECTOR, page 109)

BROILER BREEDER FLOCK PLACEMENTS OFF 16%

WASHINGTON—Domestic placements of pullet chicks by leading primary breeders for broiler hatchery supply flocks were 16% less during February of this year than they were for the same month of 1959, the U.S. Department of Agriculture said this week. The comparative figures were 1,888,000 and 2,256,000.

Total placements (domestic plus exports) were reported at 2,055,000, compared with 2,414,000 a year earlier.

U.S. Company Buys 100 Million Gal. Blackstrap

NEW ORLEANS—Cuba has sold 100 million gallons of 1960 crop blackstrap according to unconfirmed but usually reliable trade sources, according to the U.S. Department of Agriculture's Agricultural Marketing Service here.

The sale for shipment to the U.S. was basis 52 sugars at 7¢ gal., f.o.b. Cuban port. Fifty percent of the volume sold is to be delivered by May 31 and the remainder by Sept. 30.

Other published reports indicated the purchaser was Publicker Industries, Inc.

Trade sources indicated that among other terms the contract includes an offer to purchase remaining 1960 crop exportable supplies which Cuba may offer at the same price per gallon.

Cuban production of 1960 crop blackstrap molasses had reached 67.4 million gallons as of Feb. 15, compared with 29.3 million gallons produced by the same date last year, according to the Foreign Agricultural Service.

According to the Wall Street Journal, dealers estimate Cuban production for 1960 may be about 250 million gallons and said reports from Havana were that Cuban consumption might be as high as 150 million gallons this year. "On that basis, the Publicker purchase would indicate Cuba may have only some 30 million gallons more available from the 1960 crop for sale abroad. However, dealers added that Cuban internal consumption of molasses has often proved a variable figure, depending on the trend of blackstrap prices."

Earlier sales were reported to have cleared up all but 30 million gallons of the 1959 crop.

ILLINOIS PROGRAM SET

BUSHNELL, ILL.—Three members of the University of Illinois staff, a banker and a farm advisor will speak at a farmer-customer session to be staged March 23 by the Bonnett Feed & Grain Co. On the program will be D. E. Becker, professor of animal science; R. J. Mutti, professor of agricultural marketing, and Fay Sims, department of agricultural economics. All are from the University of Illinois. R. J. Solomon, Citizens National Bank, Macomb, Ill., and Richard Weller, McDonough County farm advisor, will also speak.

SOYBEAN ACREAGE SEEN UP 6%

WASHINGTON—The U.S. Department of Agriculture, in its report on March 1 intentions to plant, says soybean acreage this year will be up about 6% over last year at some 25 million acres.

Otherwise feed grain crops will remain about the same as in 1959, with corn planting intentions now estimated at 86 million; oats at 34 million, 5% below last year and the smallest on record; barley, at 16 million, up 6%, and sorghum grains at about 20 million, similar to the 1959 level.

Spring wheat acreage is estimated at 13 million, 5% less than last year. Hay acreage, USDA says, will be some 69 million, about the same as last year.

Heavy Breed Turkey Poult Production Gains

WASHINGTON — Production of heavy breed turkey poults this year is off to marked gains over a year earlier, according to the U.S. Department of Agriculture's latest hatchery report.

It has been said that fewer breeder hens this year will limit the supply of hatching eggs and poults, but the early hatch is running well ahead of 1959.

While the industry is not yet into the main hatching season, there were sharp increases in January and February, and numbers of heavy breed eggs in incubators on March 1 were up from a year earlier.

Although heavy breed poult output is up, the hatch of light breeds is down sharply. Overall, the number of poults hatched in February was 30% larger than a year earlier.

Production of heavy white breed poults during February was up 39% from February, 1959. Production of other heavy breeds, mostly broad breasted bronze was up 55%. Production of heavy white breed poults totaled 1,524,000, compared with 1,094,000 in February, 1959. Production of other heavy breed poults totaled 5,365,000, compared with 3,454,000 in February, 1959.

The number of light breed poults hatched during February totaled 781,000, compared with 1,360,000 in February last year—a 43% decrease.

Turkey eggs in incubators on March 1, 1960, indicate that the number of heavy breed poults hatched in March will be larger than in March, 1959. The hatch of light breed poults will be smaller, according to USDA.

Heavy white breed eggs in incubators March 1 totaled 4,046,000, compared with 3,148,000 last year; other heavy breed eggs totaled 15,814,000, compared with 13,860,000 last year; total heavy breed eggs amounted to 19,860,000, compared with 17,008,000 last year, and the number of light breed eggs in incubators March 1 totaled 1,397,000, compared with 2,694,000 last year.

Delaney Clause Hit In Abbott Report

CHICAGO—The Delaney clause of the food additives amendment "appears to have curtailed the Food and Drug Administration's former scientific approach" to additive problems, Abbott Laboratories declares in its 1959 annual report.

The clause "is laudable in that it aims to ban use of possible cancer-causing agents," the report notes; however, "rigid and narrow interpretation of regulations covering feed additives that have been proved valuable through years of use complicates our work in this field.

"This is a concern to all companies in the industry," says the report. "Nevertheless, it is our belief that the exercise of scientific judgment must eventually prevail."

K. C. Mills Record Little Change in Feed Production

KANSAS CITY—Not much change occurred in total feed production at Kansas City in the past year. Output of nine milling companies in the market area amounted to 559,290 tons, compared with 567,289 in the previous year, a decline of a little over 1%. Output was about 5% above the level of two years ago.

The Kansas City area kept pace fairly well with national figures which also showed no appreciable change in 1959 compared with the previous year, according to estimates of the American Feed Manufacturers Assn.

Poultry feed output was down somewhat in the Kansas City area in the past year, while there was a substantial gain in hog feeds and cattle feeds also showed improvement. There was not much change in dairy feeds.

In the early months of 1959, production ran ahead of the previous year, but the gain was lost in the fall when poor egg prices and large supplies of local grains, including much wet corn ineligible for government price support, curtailed feed demand in many sections.

There were no changes of importance in capacity and trade territory for Kansas City mills in the past year. Production in the area is currently below the peak levels set in the early 1950's because of increased shipments of concentrates, as compared with complete mixed feeds, and also because of the establishment by some national companies of additional plants in nearby territories which formerly were served from Kansas City.

The following table shows the production of feeds by mills in Kansas City for a series of years:

1959	559,290
1958	567,289
1957	539,973
1956	571,246
1955	571,976
1954	635,128
1953	659,154
1952	762,979
1951	759,103
1950	632,715
1949	580,383
1948	522,376
1947	491,425
1946	485 381
1945	526,932
1944	478,673

Wirthmore to Build Bulk Feed Station

WALTHAM, MASS.—Construction of a new bulk feed station at Florin, Pa., is scheduled for completion by June 1, according to S. R. Renaudette, vice president in charge of manufacturing for Wirthmore Feeds Inc., Waltham, Mass., and E. W. Stevens, head of the company's bulk feed department.

The new feed handling facilities are intended to provide for more economical and efficient distribution of poultry, dairy and livestock feeds by the firm's dealers in the area. It is expected that delivery service from the new bulk station will be available to Wirthmore distributors within a 50-mile radius of Florin.

Of all steel construction, the station will make it possible to unload feeds from rail cars into bulk trucks for dealer and farm deliveries. Eight steel bins provide facilities for storing feeds for future delivery.

Now in the design stage, the plant will feature overhead "traveling scales" for accurate weighing of feed as it is delivered by gravity from bins into bulk trucks.

The new bulk station will be fabricated by Sprout, Waldron & Co. at its factory in Muncy, Pa. Finished sections will be shipped to Florin for erection.

Ful-O-Pep LEADER-SHIP PAYS OFF FOR YOU IN HELPING BUILD bigger bulk and grind-mix business!

Today's bigger and more-specialized feeders are cost-conscious feeders. As a result, there is a definite trend toward bulk handling of feeds, and local grinding and mixing . . . and Ful-O-Pep has led the way in adjusting to meet this changing feed picture.

A high percentage of Ful-O-Pep sales today are in bulk. For many years, Ful-O-Pep has promoted local grinding and mixing through its Pep-Mix Program. Successful dealers everywhere are taking advantage of Ful-O-Pep backing in these fields to increase their share of the feed market.

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CCC, Trade Views on Storage Rate

USDA Announces Plan for Grain Storage Rate Cut

WASHINGTON — The Commodity Credit Corporation of the U.S. Department of Agriculture this week announced proposals it is making for downward revision of the rates for storage, and for handling truck deliveries, of price-support grain under the Uniform Grain Storage Agreement.

The text of the USDA press release follows:

"Studies looking toward the renegotiation of the rates have been under way for more than a year. These studies confirmed the fact that such factors as increased efficiencies, construction costs of supplemental facilities and larger volumes justified some reduction of rates.

"First contracts under the Uniform Grain Storage Agreement were entered into between CCC and commercial warehousemen in 1940. From that date through 1952, the provisions of the agreement were renegotiated four times and storage rates were changed five times. Each of these changes resulted in increased costs for CCC. A further renegotiation in 1954 resulted in an increase. The renegotiation in 1956 resulted in a slight reduction of the costs to CCC.

"The proposed rates represent an average reduction of 19% from the rates currently in effect for storage in both country and terminal grain elevators, and also an average reduction of about 19% in the handling charges (receiving and loading-out) for grain received by truck—with no change in the handling charges for grain received by rail.

"The proposed storage rates average 3.2% less and the handling charges for truck-received grain average 19% less than those which were in effect in 1952. The proposed handling charges for grain received by rail reflect no change from the 1952 levels.

"These new proposals have been submitted to representatives of the commercial warehouse industry for their consideration. They were in Washington this week for one of a continuing series of conferences with department representatives regarding current renegotiation of the storage agreement.

"The proposed rates contain no geographic variations and fewer commodity variations than are currently in effect. This would simplify the over-all rate structure and is justified by the studies.

Rates Explained

"For oats, no change in handling charges is proposed. The annual stor-

(Turn to USDA, page 114)

Proposal Called Unacceptable by Warehousemen

WASHINGTON — Spokesmen for the grain warehousing industry say that the government's grain storage rate proposal represents "a drastic and substantial reduction in storage and handling rates" and that it "will be entirely unacceptable to the more than 11,000 warehousemen who will be affected adversely."

The industry statement was issued here after USDA had presented its rate proposals to representatives of the industry.

The statement said that the proposed rate structure is associated with a request from USDA for a "tremendous increase in the responsibilities under the terms and conditions of the proposed new contract. Thus, the proposed reduction is, in effect, far in excess of 19% as stated. . . . The offer is not fairly compensatory for the services to be performed."

The industry statement follows:

"Our immediate reaction is that this proposal is a drastic and substantial reduction in storage and handling rates, and that it will be entirely unacceptable to the more than 11,000 warehousemen who will be affected adversely.

"The proposed rate structure, with no prior discussion, is associated with a request from the department for a tremendous increase in the responsibilities under the terms and conditions of the proposed new contract.

"Thus, the proposed reduction in rates is in effect far in excess of 19% as stated. This is because the risks and responsibilities involved in safeguarding grain for the Commodity Credit Corp., both in quantity and quality terms, will be increased, while compensation for this service is sharply reduced.

"The proposed rates assume that there will be continued high occupancy and use of grain storage space owned by the industry, which has been repeatedly asked to expand its facilities and has responded to this. This is not a safe assumption. Recent occupancy of space has surely been abnormally high, but this may be of temporary duration.

"The department assumes that costs of operation will continue at levels in effect a year or two ago. Such costs have already advanced since the department's cost survey was made, and further advance is in prospect.

"High-Risk Venture"

"The department, in our opinion, has failed to take into account a fair return on the high-risk venture capital reflecting short-term employment

(Turn to PROPOSAL, page 114)

Handling and Storage Charges Under the Uniform Grain Storage Agreement

New Rates Proposed, in Cents Per Bushel

Commodity	Area	Truck grain: Receiving	Truck grain: Loading-out	Truck grain: Total	Rail and water grain: Receiving	Rail and water grain: Loading-out	Rail and water grain: Total	Storage: Daily	Storage: Annual
Oats	All	2.75	.75	3.50	1.50	.75	2.25	.028	10.220
Flax	All	6.50	.75	7.25	2.00	.75	2.75	.037	13.505
All other grains	All	4.25	.75	5.00	1.50	.75	2.25	.037	13.505

Current Rates, in Cents Per Bushel

Commodity	Area	Truck grain: Receiving	Truck grain: Loading-out	Truck grain: Total	Rail and water grain: Receiving	Rail and water grain: Loading-out	Rail and water grain: Total	Storage: Daily	Storage: Annual
Oats	All	2.75	.75	3.50	1.50	.75	2.25	.032	11.680
Flax	All	6.50	.75	7.25	2.00	.75	2.75	.049	17.885
Corn	All	3.75	.75	4.50	1.50	.75	2.25	.045	16.425
Barley	All	4.75	.75	5.50	1.50	.75	2.25	.045	16.425
Wheat and All other Grain (rye, Soybeans, Grain sorghums)	I	5.75	.75	6.50	1.50	.75	2.25	.043	15.695
	II	5.75	.75	6.50	1.50	.75	2.25	.045	16.425
	III	6.25	.75	7.00	1.50	.75	2.25	.044	16.790
	IV	7.25	.75	8.00	1.50	.75	2.25	.047	17.155
	V	7.25	.75	8.00	1.50	.75	2.25	.049	17.885

W. S. Stone

J. D. Sykes

Colorado Grain, Feed Program Set

DENVER, COLO. — Storage problems, marketing and utilization of wheat, agriculture integration, trends as they affect the feed industry and the inventory tax, all will be under discussion at the 35th annual convention of the Colorado Grain, Milling & Feed Dealers Assn. March 27-29 at the Shirley-Savoy Hotel.

The first day of the convention will be devoted mostly to registration, a director's meeting and social events, with the convention proper getting under way Monday, March 28.

Two talks on grain storage will highlight the opening morning's session: Alvin E. Oliver, executive vice president, Grain & Feed Dealers National Assn., will give a "Report on the Uniform Grain Storage Agreement." Donald E. Smith, director of the Kansas City office of the Commodity Credit Corp., will follow with a talk on "Storage Problems."

The afternoon will be dominated by a panel discussion on "Marketing and Utilization of U.S. Wheat," moderated by Earl Cross, Colorado Milling & Elevator Co. On the panel will be James Dean, Farmers Commission Co., Hutchinson, Kansas; Clifford Hope, Great Plains Wheat Marketing Development Assn.; Al Laybourn, Simpson, Laybourn, Miller & Stark Grain Co., Salina, Kansas; Lou Caster, American Bakers Assn., and Charles Pence, Kansas Wheat Improvement Assn.

Talks of interest to feed men will take up much of the Tuesday morning session. Yale Huffman, Colorado State House of Representatives, will lead off the morning with a talk on "The Inventory Tax—Repeal or Reform?" William V. Warren, Jr., Warren Sales Co., Denver, will then speak on "Integration—Re-evaluating the Role of the Feed Industry in Agriculture." J. D. Sykes, vice president, Ralston Purina Co., will talk on "Trends in Animal Agriculture as They Affect the Feed Industry."

"Small Business Investment Act of

(Turn to COLORADO, page 114)

Broiler Egg Set, Placements Off

SALISBURY, MD.—Hatcherymen across the nation cut back their egg set last week.

A total of 47,827,000 eggs were set. This was 3% less than the previous week and 8% below the corresponding week a year ago. Settings were down in 18 of the 22 important broiler producing states. States showing sizeable decreases included Georgia, North Carolina, Arkansas, Virginia and Missouri.

Broiler chick placements were also down. The total made last week in the 22 states was 34,485,000. This was 1% below the previous week and 5% below the corresponding week a year ago. Decreases were reported for 12 states compared with the previous week.

Growers here in Delmarva last week received an average of 18.60¢ lb. on the farm for their broilers. The week before the price was 19.98¢. However, a year ago the price was 18.22¢. Marketings totaled 3,236,000. This was 16% more than the week before and 15% below the corresponding week of 1959.

Millfeeds Lead Ingredient Parade To Higher Prices

The millfeed market climbed aloft like a kite in a March wind this week, and led a parade of other major formula feed ingredients to higher price levels. Representatives of the feed trade agreed that ingredients were among the bulls.

The most striking leap was made by millfeeds. The jump was to a new high for the crop year. Just about everything else was on the stronger side, too: Soybean and cottonseed meal, animal protein feeds, hominy feed and feed grains. Still in the dumps were linseed meal and peanut meal. On the steady side were alfalfa meal and molasses.

Millfeed Developments

Millfeed increases were in the $3@4 range at most markets during the week ended March 16. In addition to being at their highest point in price since April of last year, middlings and bran tags were up to $3 higher than a year earlier at most markets.

A millfeed market observer noted that bran and midds were $3 higher at mid-week on the Buffalo market than on the corresponding date a year earlier. At Minneapolis, bran was 50¢@$1 above last year's level, and midds were $2 stronger. Kansas City quotations for bran and middlings were $3@3.50 stronger than a year ago.

Feed manufacturers were reported to be active millfeed buyers during the week to cover additional feeding stimulated by cold weather. Southwest markets found additional outlets in the South where snow has had an almost devastating effect.

Millfeed production by U.S. mills continued light during the week ended March 16. Output was down to 85,300 tons compared with the 90,100 tons of the week before.

From the Pacific Northwest it was reported that 2,000 tons of feed were sold for export to Japan, which, to-

(Turn to INGREDIENTS, page 114)

Average Bulk Prices and Index of Weighted Prices*

(Dollars per ton)

	Mar. 15, 1960	Mar. 8, 1960	Change from previous week
OILSEED MEALS			
Prices at prin. mkts.:			
Soybean meal	64.70	64.05	+ .65
Cottonseed meal	62.95	62.55	+ .40
Linseed meal	67.90	69.15	—1.25
Copra cake or meal	71.50	72.25	— .75
Peanut meal	51.50	55.00	—3.50
Index	84.1	83.5	+ .6
ANIMAL PROTEIN FEEDS			
Prices at prin. mkts.:			
Meat meal	76.05	74.35	+1.70
Tankage	75.90	73.95	+1.95
Fish meal	102.00	102.00	...
Index	70.7	69.6	+1.1
GRAIN HIGH-PROTEIN FEEDS			
Prices at prin. mkts.:			
Gluten feed and meal	45.20	45.10	+ .10
Dist. dried grains	54.85	55.75	— .90
Brewers dried grains	40.50	40.25	+ .25
Index	72.3	72.4	— .1
WHEAT MILLFEEDS			
Prices at prin. mkts.:			
Bran	44.65	42.70	+1.95
Midds. and shorts	45.80	43.75	+2.05
Index	81.7	78.1	+3.6
OTHER MILLFEEDS			
Prices at prin. mkts.:			
Hominy feed	43.15	41.05	+2.10
Rice bran	26.00	26.00	...
Index	64.6	61.9	+2.7
ALFALFA MEAL			
Prices at prin. mkts.	56.25	56.15	+ .10
Index	108.3	108.1	+ .2
MOLASSES FEEDING			
Prices at prin. mkts.	21.01	21.01	...
Index	62.5	62.5	...
ALL FEEDSTUFFS			
Index	79.7	78.6	+1.1
FEED GRAINS			
Prices at prin. mkts.:			
Corn	39.70	39.40	+ .30
Oats	48.60	48.10	+ .50
Barley	42.30	42.10	+ .20
Grain sorghums	37.70	37.40	+ .30
Index	65.3	64.8	+ .5

*Base period of index is 1947-49.
Source: Agricultural Marketing Service, USDA.

Plans Complete for Texas Convention

HOUSTON, TEXAS—Five key addresses, all designed to be of interest to grain and feed men, along with a panel discussion and a luncheon talk, will highlight the program of the Texas Grain & Feed Assn. March 31-April 2 in the Shamrock Hotel.

The opening day will be devoted mostly to the annual golf tournament at the Westwood Country Club and a meeting of the board of directors.

The convention proper will get under way April 1 with a breakfast for editors and speakers, followed by the first general session. Giving the opening talk will be Walter H. Blanton, Carrollton, Texas, president of the group. He will be followed by C. S. Force, Kalamazoo, Mich., president of the Grain & Feed Dealers National Assn.

Highlighting the afternoon session will be talks by Roger Fleming, Washington, secretary of the American Farm Bureau Federation, and Eldon Roesler, Milwaukee, Wis., editor of Feed Bag.

Conferences will take up the rest of the afternoon. Feed mixers and distributors, association men and college men will meet to plan an association program for 1960-61. At the same time, presidents and other officers of grain and feed trade associations of the southwest states will gather. A transportation conference is tentatively scheduled also at the same time.

Only one talk and a panel discussion are scheduled April 2, with the meeting winding up at noon. C. H. Moseley, director, Dallas office of the Commodity Stabilization Service, will speak to the group, followed by a panel discussion on the 1960 Uniform Grain Storage Agreement. Answering questions will be three of the trade negotiators who have dealt with the U.S. Department of Agriculture this year, Mr. Blanton; Frank Phariss, Amarillo, Texas, and Price Feuquay, Enid, Okla.

Two business meetings, one on the report of the resolutions committee and the other for the election of officers, will be held the final morning. A luncheon meeting for the newly-elected board of directors will close out the conference.

Other social events, besides the golf tournament, have been scheduled. A luncheon meeting for the delegates April 1 will feature an address by the former governor of Texas, Allan Shivers. A luncheon meeting with entertainment will be held for the ladies at the same time.

A social hour will be held the same night, to be followed by the annual banquet with floor show and a dancing party.

DRUG WITHDRAWAL REQUIREMENT CITED

CHICAGO—A reminder of the importance of following regulations on withdrawal of medicated feed prior to slaughter of livestock and poultry was issued this week by the American Feed Manufacturers Assn.

An association bulletin called attention to a joint statement by AFMA and the Animal Health Institute last December, emphasizing the importance of carefully following state and federal regulations of medicated feed. Special mention was made of the requirement, where necessary, to remove certain drugs at certain times prior to slaughter.

"Failure to observe the withdrawal requirement could lead to serious consequences for all segments of the industry," AFMA pointed out. "It is most important for feed manufacturers to take whatever steps are necessary to make sure livestock and poultry raisers are familiarized with federal requirements and that feeding directions are carefully followed."

GFDNA OFFICERS — New officers of the Grain & Feed Dealers National Assn. were elected by the members at the 64th annual convention in Kansas City. Alvin E. Oliver was renamed executive vice president and Herbert L. Sharp was reappointed secretary-treasurer. Shown (left to right), are: Third vice president, Sam Rice, Jr., Rice Grain Co., Toledo, Ohio; first vice president, H. V. Nootbaar, H. V. Nootbaar & Co., Pasadena, Cal.; president, Charles Force, Little Brothers, Kalamazoo, Mich., and second vice president, S. Dean Evans, Sr., Evans Grain Co., Salina, Kansas.

Reduced Supplies Of Dehy Seen

KANSAS CITY — Heavy snow storms have made a considerable change in the supply outlook for dehydrated alfalfa, Joseph Chrisman, executive vice president, American Dehydrators Assn., Kansas City, said this week after making a survey of plants in the Midwest.

Instead of a comfortable margin of supplies for carryover into the new producing season, which seemed apparent a month ago, the carryover may turn out to be very small or nonexistent because of delayed new production.

Besides the delayed first cutting, there is some threat to a substantial alfalfa acreage from flooding, according to Mr. Chrisman.

"The snow cover in the watershed of the Kansas River is such that some flooding seems inevitable," he said. "Should the weather warm up rapidly with either bright sunshine or rains, the 12-20 in. snow cover would convert to more water than the icebound river could handle and many acres of bottomland would be flooded. This condition could well carry through the Missouri River all the way to St. Louis.

"Even a slow warm up will leave fields water soaked for many weeks and forage crops like alfalfa will be severely damaged," Mr. Chrisman declared. "The cold and snow penetrated deeply into the South. Oklahoma dehydrators who started their plants late in March last year will do well to get started in late April this year. The Mississippi Valley dehydrators as far south as Memphis will also be delayed by two or three weeks in starting their operations. It is too early to speculate about snow-covered Nebraska."

(Turn to DEHY, page 114)

No Residues from Estrogen in Feed

MADISON, WIS. — No estrogen residues were found in the edible tissues of chickens receiving Lipamone-supplemented feeds when the treatment was halted 48 hours prior to slaughter, according to data cited this week by American Scientific Laboratories, Inc. (ASL).

Lipamone, the only "in-the-feed" hormonizer for poultry on the market, was not affected by the recent government action banning poultry injected with stilbestrol, ASL spokesmen pointed out.

They noted that the feed additive is for use with broilers, roasters and turkey fryers to improve carcass quality by promoting distribution of fat for tenderness and bloom. It also is said to have a quieting effect on birds so that mixed flocks can be raised with a minimum of picking and fighting.

Leonard Schruben to Join Wheat Group

GARDEN CITY, KANSAS — Dr. Leonard Schruben has been appointed economic advisor to the Great Plains Wheat Market Development Assn.

Leonard Schruben

The announcement was made by Herbert J. Hughes, vice president of the regional organization supported by the Colorado Wheat Administrative Committee, the Nebraska Wheat Commission, the Nebraska Wheat Growers Assn., the Kansas Wheat Commission and the Kansas Association of Wheat Growers.

Dr. Schruben will take a leave of absence from Kansas State University at Manhattan where he has been a professor of agricultural economics for the past 11 years.

In the newly-created position, Dr. Schruben will supervise economic research and studies on wheat production and marketing.

Much of Dr. Schruben's work will be linked with research programs of the land-grant colleges in the 10 Great Plains states.

Pennsylvania Meetings

EPHRATA, PA. — The Pennsylvania Millers & Feed Dealers Assn. has announced the schedule for its 1960 regional meetings.

Meetings scheduled are as follows: March 28, Dillsburg, The Chalet; March 29, Roaring Spring, Eldon Inn; March 30, West Newton, Peasant Village; March 31, Greenville, Schuster's Restaurant; April 4, Reading, Hotel Abraham Lincoln; April 5, Newport, American Legion; April 6, Williamsport, Lycoming Hotel, and April 7, Tunkhannock, Prince Hotel.

The program will include a discussion of feed additives, pesticides and new drugs as applied to feed dealers by representatives of the U.S. Food and Drug Administration; details of a new insurance coverage, and a report of association activities.

Oilseed Meal Futures Make Strong Upturn

MEMPHIS, TENN. — The oilseed meal futures market has turned very strong on the Memphis Board of Trade. Speculative sources have bought March soybean oil meal futures, forcing the market higher.

As the board advanced, crushers were forced to raise their ideas on cash oil meal. And while trading remained slow in the cash article, the market seemed to be forced to follow futures. This was similar to other occasions when the crushers, due to the futures tone, had to sell cash oil meal higher—much more difficult than at the lower level.

Cottonseed oil meal demand was good in the cash market and this, along with influence on the soybean oil meal gain, sent prices upward.

Memphis basis soybean oil meal closed March 15 25¢@$1.50 ton higher, unrestricted soybean oil meal 50¢@$2 higher and bulk solvent cottonseed oil meal $1@3 higher.

Trading volume for the period amounted to 2,000 tons of unrestricted soybean oil meal and 900 tons of bulk solvent-cottonseed oil meal.

New Furazolidone Use Is Announced

ASHLAND, OHIO—A new use for a furazolidone product in feeds has been cleared, the manufacturer reported this week. The product is nf-180, and its clearance is for feeding to sows before and after farrowing, said Russell H. Eshelman, vice president of marketing for Hess & Clark.

The new use of nf-180 for "internal sanitation" through treatment of the sow to protect her pigs "allows the hog raiser to complete the circuit in his swine sanitation program," Mr. Eshelman noted. This use, he said, results in breaking the scours infection cycle at a critical point.

Another benefit obtained through the use of the furazolidone product before and after farrowing is the reduction of the likelihood of non-specific bacteria being passed to the pigs, Mr. Eshelman said.

Feeding directions for the new use are: "150 grams of furazolidone per ton of total sow ration for three weeks, beginning one week before farrowing and continuing for two after, as an aid in prevention of bacterial scours, reduction of early losses and maintenance of growth of baby pigs."

He referred to University of Kentucky tests in which researchers noted "considerable improvement in livability and weight gains in pigs from sows receiving nf-180 before and after farrowing compared with pigs from unmedicated control sows."

Mr. Eshelman cited an early nf-180 test on a farm which had a history of severe infectious scours. "No evidence of infectious scours has appeared on the farm" since nf-180 was introduced to the sow feeding program, he said. "Apparently nf-180 killed the organisms in the sow's intestines, thus keeping them from passing the disease to the newborn pigs through their droppings."

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Letters to the Editor

Role of Extension

Brooklyn, Conn.

To the Editor:

Thank you for the opportunity to comment on your editorial of Feb. 27 entitled, "Going Too Far."

I do not feel as you do that publishing a reputable grain formula and the cost of ingredients is an over extension of extension. Nor do I feel that saying that farmers are having it custom mixed for $6-8 ton is also over extending extension. This is information that is accurate.

Your editorial saying that farmers could use this as a bargaining range is true. I say this is good. The price for custom mixing is information available to all, simply by asking feed companies. The New England College Poultry Formulas are available to all. Every land grant university has a formula prepared by accredited poultry nutritionists. In fact many of the nutritionists at colleges throughout the U.S. receive consultant fees from major manufacturers.

I feel that the extension service has as much right to say how much you can have a ton of feed custom mixed for, as it does to publicize the costs of producing a pound of meat or a dozen eggs.

Not one feed company or trade journal ever screamed, "over extension of extension" when the extension service published farm cost of production figures for meat and eggs. Yet, I have heard a number of buyers tell farmers, you don't need 20¢ for your broilers, you can raise them for 16¢.

I am of the opinion that farmers have spent too much time becoming efficient in production and too little time in becoming efficient in buying and bargaining. The time is coming when the farmer is going to need bargaining power to stay in business. Any help that he can get in gaining bargaining power from me will be forthcoming.

I am not saying that every farmer should use the New England College Conference ration. I am saying, "This is a good formula," that it may help him stay in business and compete. He should know what is in his feed and how much it costs. He should go to group specification buying. In fact in your Feb. 20 issue you report, and I quote "Group specification buying of feed at so much over ingredient cost will spread into other areas." This statement was made at the Pacific Northwest Feed Mill Production School at Yakima, Wash. William H. Udell, North Pacific states division manager for Purina, also speaking on specification buying told of a group in California, using a University of California poultry ration, having it custom mixed for $5.20 a ton. This included grinding, mixing, delivery and credit.

In my newsletter I quoted $6-8 ton grinding and mixing charge. It now appears to me that it can be done cheaper than this if we are to believe Mr. Udell of Purina.

Feed is the major cost of producing a pound of meat or a dozen eggs. A farmer who survives the present shambles of an integrated broiler industry and a changing egg industry is going to be one who knows what is in his feed, how much each item costs, and who can and will mix it for him at the best price. If I as an extension agent can't help him do this, who can? Certainly he can't expect help from a multi-million-dollar industry which is already competing with him by growing broilers and producing eggs. If the truth be known the independent farmer has probably been subsidizing the money-losing contract operations of many feed manufacturers. Let the poultry farmer make a living producing meat and eggs, and let the miller make a living selling feed. The whole poultry industry would be in a better position.

Although you evidently don't agree with me on what the role of a good extension service or county agent should be I still think you edit an excellent weekly.

Donald S. Francis
Associate County Agricultural Agent
University of Connecticut

Californian's View

Ontario, Cal.

To the Editor:

We agree with the title of your lead editorial in the February 27, 1960, issue of Feedstuffs, but possibly for other reasons. We feel that YOU may be going too far.

Here in California we have had many occasions to use our extension service for information on feed formulas. We also make use of the Federal-State Market News Service's publication of grain prices in planning our formulas. Since we are taxpayers, we feel these services are also meant for us.

When women's magazines publish menus with cost approximations, retail markets do not seem to feel that they are being imposed upon. In fact, they sell these magazines and feature the items necessary for the menus. Can we assume that your feed manufacturers are more sensitive than the retailers? You indicate that "workings of the market in ingredients are not easily understood by feeders, and the miller can be put in a difficult defensive position when confronted by a price list bearing the authority of a college publication." If your miller does not understand the workings of the market, the poultryman may be wise in assuming that he may not understand the workings of nutrition, and he may assume that the public tax-supported professor will have the public interest more at heart than a miller with less training and more selfish interests.

A "manufacturer who has confidence in his formulas . . . and his skill as an ingredient buyer and nutritionist" should have no objections to defending his formulas against anyone, be it a disinterested professor or the members of our feed committee.

The function of the extension division is to act as a service to the American farm. If the New England area felt the need for the formula as developed by their extension service, then it was the duty of the extension service to publish this type of information.

I. Stein, Chairman
Feed Committee
Ontario Poultrymen's Co-op. Assn.

(Editor's Note: Mr. Stein correctly quoted our comments on understanding of the workings of ingredient markets by feeders, but he apparently misinterpreted it, as indicated by the next sentence in his letter. Comment on these letters appears in "Top of the Hopper," page 2.)

GFDNA PANEL—Members of the panel discussion on "Progress Report on the Uniform Grain Storage Agreement Contract Negotiations" at the 64th annual convention of the Grain & Feed Dealers National Assn. at Kansas City are shown (left to right): S. Dean Evans, Sr., Evans Grain Co., Salina, Kansas; R. C. Woodworth, vice president, Cargill, Inc., Minneapolis; Pete Stallcop, chairman of the panel, secretary, Northwest Country Elevator Assn., Minneapolis; Leland C. Miller, Federal-North Iowa Grain Co., Cedar Rapids, Iowa, and Frank Theis, Simonds-Shields-Theis Grain Co., Kansas City.

January and Season Feedstuff Use Down

WASHINGTON — Consumption of commercial feedstuffs during January totaled 1,661,700 tons—down just under 1% from the same month a year earlier, the U.S. Department of Agriculture reports. This reduction brought disappearance for the latest October-January period down to 7 million tons—about 2.7% less than the 7.2 million tons used during the like period a year ago.

USDA said the small disappearance during January was due mainly to the drop in soybean meal production and to the larger exports of oilseed meals.

Exports of oilseed meals, mainly soybean and cottonseed meals, totaled 91,200 tons in January, bringing the October-January total to 480,800, compared with 219,300 tons for the same period last year.

Soybean meal production of 785,700 tons during January was 87,000 tons below a year earlier. October-January output was 3.2 million—only slightly under last season. However, USDA notes, with increased exports and larger ending stocks, the 2.9 million-ton disappearance of soybean meal during the four months was down nearly 150,000 tons. Consumption of cottonseed meal increased slightly during October-January, but that of the other oilseed meals was down by the following percentages: Linseed meal, 45%; peanut meal, 20%, and copra meal, 16%.

Consumption of grain by-product feeds totaled 2.3 millions tons the first four months of the season. This amounted to an increase of 4% over last season, which was due to the larger output of wheat and rice millfeeds and increased shipments of gluten feed and meal. Alfalfa meal shipments were down in the four-month period, with stocks on Jan. 31 somewhat above a year earlier.

Domestic production of fish meal increased, but imports were smaller, so consumption was down to 88,000 tons for the latest October-January period, compared with 97,000 tons during the same months of the season before.

Regional Manager

DES MOINES, IOWA—Ray Priebe has been appointed regional manager in northwest Iowa by the Farm Bureau Service Co. of Iowa.

A veteran of 22 years in Farm Service work, Mr. Priebe is the former manager of the Benton County Farm Service Co. in Vinton. Mr. Priebe will live in Storm Lake.

MANAGER NAMED

VINTON, IOWA—Dan Gabrielson has been named manager of the Benton County Farm Bureau Service Co. He had served as manager of the M & W Farm Service Co. in Winterset since 1951. New manager of M & W is Ralph Greenlee of Ames, a recent graduate of Iowa State University.

Number of Early Lambs Is Up 2% From Year Ago

WASHINGTON — The number of early lambs in the principal early lamb producing states is about 2% above a year earlier based on reports about March 1, according to the U.S. Department of Agriculture.

The number of breeding ewes in these states on Jan. 1 was 5% more than a year earlier, USDA notes, but the proportion of ewes lambing early is below a year ago.

The number of breeding ewes on farms and ranches Jan. 1 was above the previous year in 7 of the 10 states. Declines were shown in Missouri, Kentucky and Tennessee. The seven other states covered by the report are Virginia, Idaho, Arizona, Washington, Oregon, California and Texas.

USDA points out that in general, the growth and development of early lambs have been slower than normal. Feed grain and hay supplies have been generally adequate in the early lamb states, USDA adds.

Weather was generally favorable in January, but weather during the latter part of February was unfavorable, particularly in Missouri, Kentucky, Virginia and Tennessee, due to heavy snows and severe winter storms.

The USDA report notes that considerable supplemental feeding has been necessary in most of the early lamb states.

Bonewitz Laboratories Names District Head

BURLINGTON, IOWA — Harvey Peckham has been named a district sales manager in the Bonewitz Laboratories division of Bonewitz Chemicals, Inc.

Harvey Peckham

Previously, Mr. Peckham had been with the Flavor Corporation of America. In his new assignment, he will be responsible for sales in eastern Iowa, Wisconsin and Illinois. Bonewitz Chemicals, Inc., manufactures and distributes feed ingredients throughout the midwest and manufactures industrial cleaners, detergents and chemicals for sale in food plants and dairies.

California Poultrymen Discuss Condemnations

FRESNO, CAL. — The California poultry industry met here recently for a thorough discussion of poultry condemnations determined through inspection, according to the Pacific Dairy & Poultry Assn.

More than 100 industrymen, representing producer, processor, feed dealer, educational and federal inspection interests, heard discussions centered around rumored variations in condemnation losses from birds in one flock being segregated and shipped to two different plants.

Condemnation rates also were reported to indicate a variation between inspectors on two lines within the same plant. Localized and systemic conditions causing condemnations also were discussed.

Specimens of air sac infections were displayed by U.S. Department of Agriculture officials.

An action committee was recommended and approved by the group to work with USDA on industry problems relative to poultry inspection condemnations.

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Maryland Conference

New Information on Protein for Hens, Other Poultry Subjects Presented

By JAMES W. MILLER
Feedstuffs Staff

WASHINGTON—New information on the controversial subject of protein requirements of laying hens was presented this week.

An extensive report by Dr. G. F. Combs of the University of Maryland on protein and energy requirements of laying hens included presentation of a method which permits calculation of both caloric intake and amino acid requirements. It was shown how to determine actual level of soybean meal and corn needed in addition to fixed ingredients. The possible role of amino acid supplementation also was brought out.

In connection with some example caluculations for differing conditions, Dr. Combs showed why it is not unlikely that quite varied reports have appeared on protein requirements of laying hens. This, he said, is only to be expected.

Dr. Combs' talk on energy and protein for layers was one of several major poultry nutrition papers presented at the 1960 University of Maryland Nutritrion Conference for Feed Manufacturers. The conference was held March 17-18 at the Shoreham Hotel in Washington.

Broiler Nutrition

Broiler nutrition as well as the feeding of layers and replacement stock received a good deal of attention from Maryland researchers and guest speakers. And some new information on turkey nutrition was outlined.

With the insertion of energy into the broiler feed picture in a major way, formulation procedures have become much more complex. With this in mind, methods of calculating poultry diets and substitution equivalents were presented by Dr. R. D. Creek of Maryland. Certain computations and information on ingredient substitution were presented as a means of simplifying the complex formulation problem.

The poultry nutrition discussions also included these points and observations:

- Several aspects of broiler nutrition were covered in a review of Maryland studies testing the adequacy of simplified feeds. These covered such things as protein level, unidentified factor supplements, vitamin fortification, use of unextracted soybeans and amino acid supplementation.
- A report on Maryland studies with chicks indicated that "from the feed manufacturer's standpoint, it appears that choice of antibiotic will be determined by cost to produce maximum growth and not by distinction as to new or old." In these studies, "newer" antibiotics stimulated growth somewhat more than "older" antibiotics.
- Recent Maryland work has demonstrated small growth response from fish products but little or none from other unidentified factor sources.
- "Feed men usually will find it advantageous to use in broiler rations a phosphate supplement of relatively high phosphorus concentration, of known high availability and of the greatest safety from fluorine toxicity."
- In Maryland mineral studies, use of an antibiotic reduced the poult's potassium requirement. Zinc appeared to be an indispensible nutrient in hens' diets. A level of 1.6 or 1.7% calcium in poult diets appears to be fully adequate.
- In studies of broiler nutrition in relation to temperature, feed efficiency generally was decreased as temperature was lowered below 60°, and less efficient conversions also were produced at 90°. Best growth was obtained at 60°, with poorer growth at 50° and 90°. A slightly better response was obtained with lower C/P ratios at all temperatures, with 60° optimum for all C/P ratios used.
- Data from egg shell quality research indicated that calcium levels may not be adequate in some diets. Even though hens have access to additional calcium, they may not consume enough voluntarily.
- "Similar results have been obtained from various methods of restriction of feed for pullets without any distinct advantage of one over the other. Georgia experiments have shown a distinct advantage for restricting feed intake of growing pullets at some time during the starting or growing period."

Summaries of reports follow:

PROTEIN AND ENERGY REQUIREMENTS OF LAYING HENS—In an extensive and significant report on this subject, Dr. G. F. Combs of Maryland described a method

(Turn to MARYLAND, page 102)

New Swine and Ruminant Feeding Research Outlined

WASHINGTON — Several aspects of swine and ruminant feeding research were brought out in talks at the annual University of Maryland Nutrition Conference.

Among the findings and observations were these:

- "In nine years of Ohio experiments, the degree of improvement in rate of gain resulting from antibiotics in drylot swine rations showed some evidence of decreasing; no decrease in feed efficiency improvement was evident."
- Pelleting a barley-containing ration did not produce a ration equal to one containing corn. Pelleting did not consistently improve corn rations.
- Reducing energy in swine rations slowed gains but resulted in better feed efficiency on the basis of both total weight gain and pounds of lean cuts. Additional gains in control animals were primarily fat.
- There is little value in holding concentrates at a low level to prevent udder edema in cows.
- If cost of grinding and pelleting hay can be low enough, it could be profitable to raise dairy heifers with less grain than now recommended.
- Studies with dairy cows with in-

(Turn to page 14)

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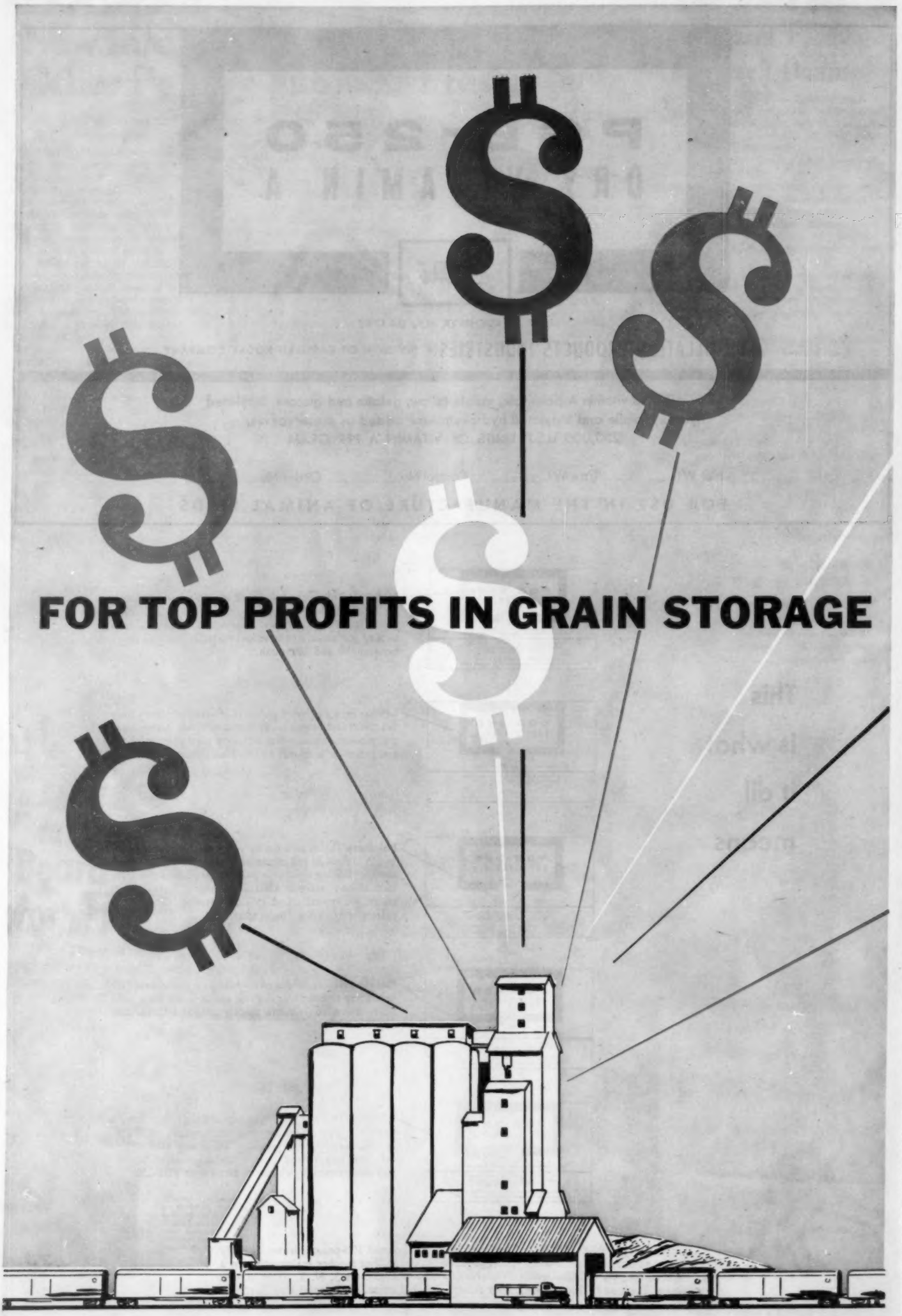
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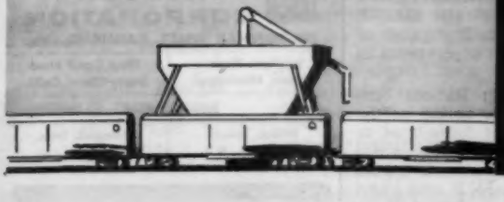

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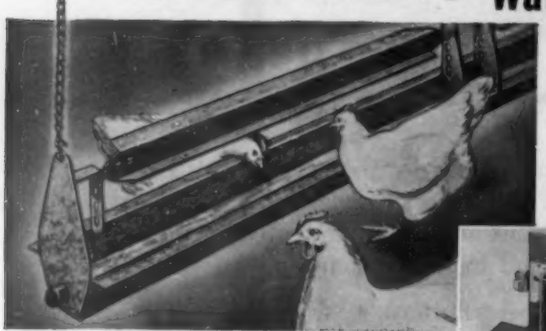

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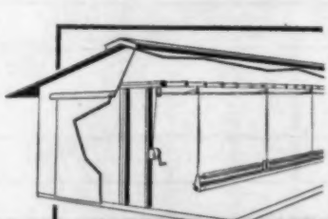

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heritance for high milk production have shown that the general belief that feed cost increases with increased level of milk production may not be valid. The law of diminishing returns may not operate with good cows.

• Body weight is the characteristic of the cow which is most closely correlated with voluntary feed consumption.

• Basic metabolic research in the Maryland dairy department indicates that acetate accounts for one fourth to one third of the metabolic requirement of oxidative energy in the ruminant.

• In Maryland research on diet and rumen volatile fatty acid production, it was shown that ruminal concentrations of total VFA are higher in sheep fed alfalfa than in those fed timothy. Pelleting of alfalfa appears to further increase the rumen level of VFA.

Summaries of reports follow:

NEWER EVIDENCE CONCERNING THE FEEDING OF ANTIBIOTICS TO SWINE — "In recent years," said Dr. H. S. Teague of Ohio State University, "considerable reference has been made to the possible decrease in effectiveness of antibiotics in swine rations. If this is true, it deserves careful attention of research personnel and the livestock and feed industry. Some have suggested that a switch in kind of antibiotic at different stages in the growing period will counteract this trend. However, basis for such a recommendation appears inconclusive.

"Evidence has been presented to suggest that the decrease in response noted is only the result of improved performance of control animals. This is often stated to be the over-all effect of antibotic feeding which has resulted in a decreased so-called 'disease level' on the premises. Until the exact role of antibiotics as they influence the metabolism of the animal is better understood, it will be difficult to determine the cause of such a trend towards decreased effectiveness, if such a trend is real."

Dr. Teague went on to tell of various antibiotic studies at Ohio, and he summarized his presentation as follows:

1. In experiments conducted over a nine-year period at Ohio, the degree of improvement in rate of gain resulting from inclusion of antibiotics in drylot swine rations shows some evidence of decreasing. No similar decrease is evident in the improvement brought about in feed efficiency. Average growth rate of pigs used as controls during this period did not increase.

2. The effectiveness of antibiotic supplementation of swine rations in dry lot was generally greater and less variable than under pasture conditions.

3. In reference to the performance of pigs fed the basal ration, there was usually a greater response to antibiotic supplementation during the early portion of the feeding period.

4. The removal of antibiotic supplementation during the feeding period resulted in an immediate decrease in rate of gain.

5. At the 20 gram per ton level supplementation, a change in type of antibiotic at a weight of 120 lb. resulted in somewhat faster rate of gain for the entire feeding period.

6. Under short-term intermittent feeding of an antibiotic, it appears that the antibiotic must be included in the feed for longer than one week at a time in order to elicit a response.

STUDIES OF THE EFFECT OF PELLETING ON SWINE RATIONS, AND OF NUTRITION ON SWINE CARCASSES—Dr. E. P. Young of Maryland reported on experiments in swine feeding.

Effect of Pelleting: Rations containing either corn or barley as the only cereal grain, but formulated to include approximately equal amounts of crude protein have been fed to growing-finishing swine. It was found that pelleting the barley ration did not produce a ration that was equal to one including corn. Although average daily gain of pigs on the barley ration was similar to or greater than gains of pigs on corn rations, Dr. Young said, the marked differences in feed efficiency suggests that corn rations will provide more efficient gains, regardless of the form of the ration.

No consistent improvement of the corn ration as a result of pelleting was shown. Both growth rate and feed efficiency of pigs fed the barley ration were improved by pelleting. However, the pelleting cost ($4 ton) precluded any improvement in economy of gain.

Effect of Nutrition on Swine Carcases: Dr. Young noted that it has been established that a reduced energy intake results in slower growth and leaner carcasses. And he went on to tell of Maryland trials to determine whether the same amount of lean meat could be produced in the

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same amount of time on a reduced energy intake by keeping consumption of protein, vitamins and minerals similar to that of full-fed animals.

Control rations contained 15 and 12% protein, respectively, for the growing and finishing periods. Energy consumption on the experimental rations was 80 and 70% of that for the control animals. All animals were slaughtered when the control groups reached 200 lb. Final weights of the 70 and 80% energy groups were about 170 and 180 lb. Carcass data showed less backfat for the reduced energy groups and greater loin eye area. Total weights of lean cuts were less.

While rate of gain for the reduced energy groups was less, feed efficiency was improved as measured by feed consumed in relation to total gain. Also calculated was feed consumed in relation to pounds of lean cuts. Using this method, pigs fed 80% of energy intake for control animals produced lean cuts for 1.5 lb. less feed per pound of lean cuts. Pigs fed the 70% energy ration also were more efficient in conversion of feed to lean meat, but protein efficiency was lower and carcasses were somewhat soft and of lower quality.

Measures of fatness and bone growth suggest that additional gains by animals in the control groups were primarily fat. A breakdown of the right ham into lean meat, lean trim, fat trim, skin and bone also support this conclusion, Dr. Young noted.

STUDIES OF UDDER EDEMA AND FORAGE UTILIZATION—"If the cost of grinding and pelleting hays can be established at a low enough level, it could be profitable to raise growing dairy heifers with smaller amounts of grain than is now recommended," Dr. R. W. Hemken said.

Dr. Hemken reported on two trials conducted to test some of the factors which might be important when feeding pelleted hays to growing dairy heifers.

"Pelleted hay offers a possibility for greater mechanization in handling hay, and some trials have also indicated advantage in increased consumption rates and body weight gains," he said.

He noted that in the two trials, the groups fed pelleted hay consumed more hay, gained faster and required less hay per 100 lb. of gain. The differences between stages of maturity were not large, he said.

Dr. Hemken also reported on studies conducted in connection with udder edema and corn silage.

He related that a trial showed little value in holding concentrates at a low level to prevent udder edema.

"Many cows do not receive enough concentrates after calving to meet their energy requirement," he noted. "Part of this is due to the belief among dairymen that high levels of concentrates will increase the severity of udder edema."

Dr. Hemken said that results of a corn silage trial indicate "a possible use of 'high sugar' corn silage if yields per acre can be increased with this silage. As yet, we have no data to demonstrate any increase in yield per acre."

A feeding trial was conducted to compare a high sugar corn (a male sterile hybrid producing cobs, no kernels) with three stages of maturity of normal corn as silages for milk production.

"The results indicate that the 'high sugar' corn silage has about equal feeding value to corn silage harvested at the stage of maturity generally recommended," he said.

ECONOMICAL FEEDING OF LACTATING COWS—"The idea is quite prevalent that the feed cost of milk production increases with increased level of milk production, but this does not appear to be the case with cows with inheritance for high milk production." This was among the points made by Dr. C. F. Huffman, Michigan State University.

Dr. Huffman listed the following observations on feed consumption and milk production which he said appear valid and warranted on the basis of experiments with lactating cows in a Michigan herd:

1. Feeding is an "art" as well as a science. The dairyman must exercise his own good judgment. He must learn to know his cows and what each can do when fed liberally to prove its worth.

2. Appetite was the first factor limiting milk production with good cows. Cows produced more milk per pound of TDN (or grain) when fed liberally than when feed was limited. The last pound of grain fed was as good or better than the first with good cows, but there was a limit to the amount they could eat. Diminishing returns did not apply with good cows.

3. These cows ate large amounts of hay even when fed liberal amounts of grain.

4. Returns above feed cost were higher when large amounts of grain were fed even though total feed cost was also higher.

5. The return per dollar spent for feed was favorable when more grain was fed and milk production was correspondingly increased.

6. The amount of milk per pound of grain did not change greatly with varying amounts of grain.

Dr. Huffman noted that Michigan Dairy Herd Improvement Assn. records of 767 Holstein herds show the same results as found with the Michigan State research herd.

"Many dairymen have lost confidence in pasture," Dr. Huffman said, "and have resorted to the use of silage or stored feed during the summer.

"During the past 10 years, however, pasture investigators throughout the world have brought about a revolution in pasture use. This has been due largely to the use of the electric fence which has made it possible to use rotational and strip grazing methods. In Europe, strip grazing has increased milk production per acre about 20-40%."

FACTORS AFFECTING THE VOLUNTARY FEED INTAKE OF DAIRY COWS—"The consumption of forage is influenced by the individuality of the cow, the forage fed and management practices," said J. H. Vandersall of the University of Maryland.

He pointed out that the variation in forage consumption is large and the reasons for this variation are not fully understood.

"The body weight is the characteristic of the cow which is most closely correlated with voluntary feed consumption," Mr. Vandersall said.

"Generally, the higher the quality of the forage, the more will be consumed and any processing which increases the rate of digestion also will increase feed consumption.

"A knowledge of the amount of forage consumed is essential for the

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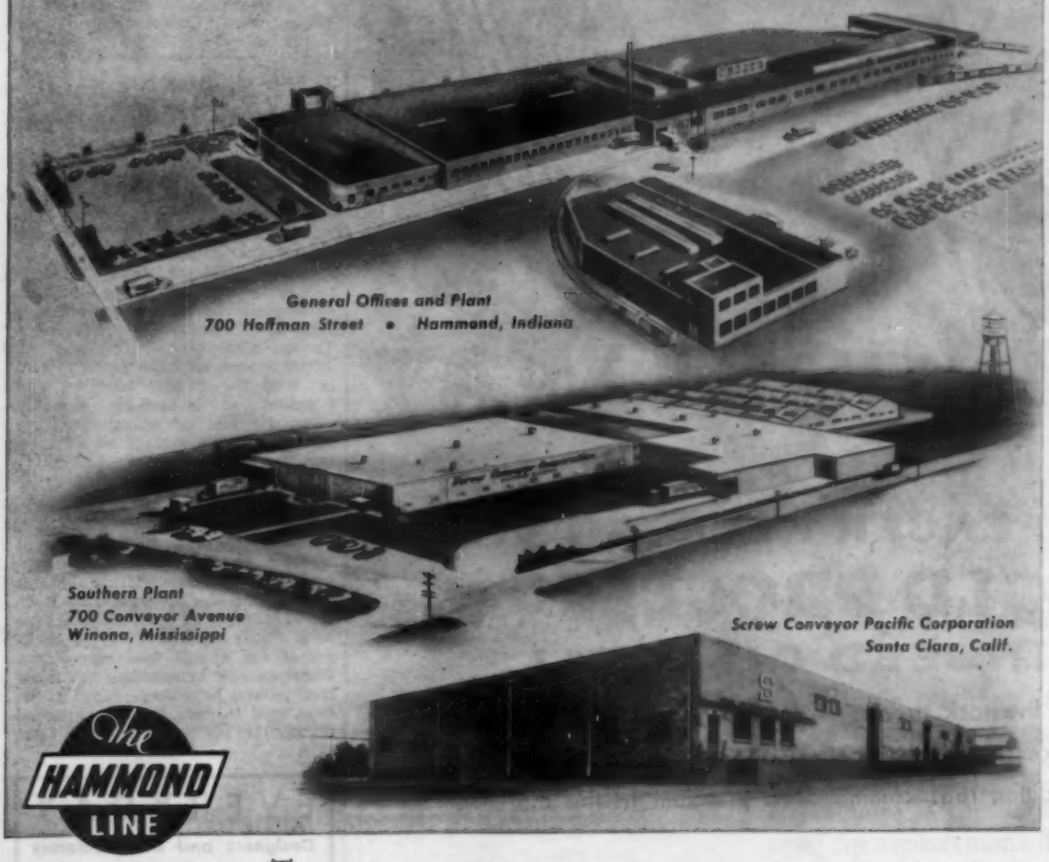

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formation of a sound dairy feeding program."

Under some management systems, he pointed out, notably milking parlors, the rate of concentrate consumption may limit the amount which can be fed. He cited experiments that showed that cows fed their concentrates as gruel ate twice as fast as those fed the same ration dry, and other tests that reported pelleted concentrates were eaten faster than ground concentrates.

RECENT CONTRIBUTIONS OF METABOLIC STUDIES TO RUMINANT NUTRITION—"The data so far obtained indicate that acetate accounts for one fourth to one third of the metabolic requirement for oxidative energy in the ruminant," said Dr. W. F. Williams of the host school.

Dr. Williams, reporting on the basic metabolic research program of the dairy department, said "the balance of the requirement is presumably supplied by other volatile fatty acids and by fat, protein and possibly carbohydrate absorbed from the lower digestive tract.

"We have here, indication for the necessity for much basic research into the metabolic function of ruminants so that understanding may be gained of the metabolic needs of these animals and the ways in which nutrition meets these needs."

Dr. Williams explained that the basic metabolic research program of the University of Maryland dairy department is attempting to provide information and ideas which will be the building stones for a nutritional and management regime giving a greater productive efficiency in ruminant domestic animals.

"Being a basic research program," he said, "it has only the broadest objectives; the elucidation of the metabolic processes of the ruminant, the metabolic requirements and the physiological mechanisms by which metabolism is regulated."

DIET AND RUMEN VOLATILE FATTY ACID PRODUCTION—Results of recent University of Maryland studies of rumen volatile fatty acid (VFA) production demonstrate that the ruminal concentrations of total VFA are higher in sheep fed alfalfa than in those fed timothy, it was reported by Dr. E. C. Leffel. The pelleting of alfalfa hay appears to further increase the VFA level in the rumen, he said.

"If VFA levels indicate the rate of production, it can be postulated that the higher amounts of acids observed in the alfalfa fed ewes are due to a faster fermentaion of alfalfa than is the case for timothy," Dr. Leffel noted. "The slightly higher molar ratios of propinate observed in pellet-fed ewes may be of nutritional significance.

"In any event, pelleted timothy was a satisfactory diet for the pregnant ewe while the timothy hay failed to promote weight gains or maintain condition in late gestation."

Dr. Leffel reported also that data obtained from vitro studies with C^{14} labelled substrates suggest that the concentration of glucose at any particular time influences the VFA produced and that the high proprionate production observed in animals on high concentrate diets can be, at least in part, explained by the rapid rate of which concentrates are fermented.

Canada Official Backs Egg Deficiency Pay

WINNIPEG—Deficiency payments are sound in principle, and were introduced after two years of ignored warnings that the production of eggs should be sharply reduced.

These views were contained in a letter from Canada's agriculture minister, Douglas Harkness, to the government of Manitoba. Manitoba's agriculture minister, George Hutton, tabled correspondence in the legislature between Manitoba and Ottawa on the subject of deficiency payments.

Mr. Hutton had written Mr. Harkness expressing that Manitoba viewed with great alarm the federal government's deficiency payment program, and the effect it was having on egg producers in the province. Mr. Hutton's letter had pointed out that the deficiency payment program for eggs, instead of preventing undue hardships to small producers in the province, was having the opposite effect, and many farmers were going out of the production of poultry and eggs.

The reply from Mr. Harkness also said the greatest share of responsibility for the dilemma in the egg and poultry market can be attributed to serious over-production in two areas. These were Ontario-Quebec and Manitoba.

GMI Feed Mill Sold

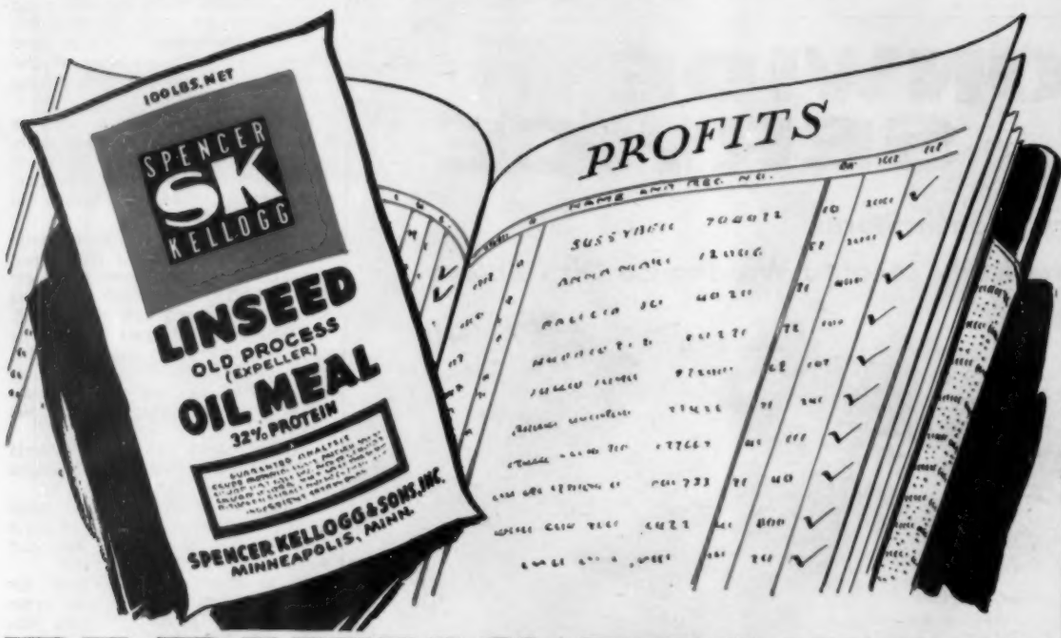
TACOMA, WASH.—A General Mills, Inc., feed mill, grain elevator and warehouse at 5446 S. Washington St. here has been sold to Gold Seal Chinchillas, Inc., for an undisclosed price, according to Paul Folquet, manager, and E. G. Streets, president, Gold Seal Chinchillas.

General Mills consolidated its feed processing facilities at its Dock St. plant about 18 months ago when it shut down operations at the South Tacoma plant.

Mr. Streets said the property will be used for storing supplies, and eventually will be used for a dressing plant. He said the elevator will be leased for grain storage or for sand and gravel storage.

Sales Area Expanded

DECATUR, ILL. — Extension of "Sweetone" dried molasses concentrate sales into four additional states and Canada was announced by E. C. Lane, manager of meal sales for the A. E. Staley Manufacturing Co., makers of the animal feed supplement. Fourteen new independent wholesale feed jobbers have been named in the new area to care for the expanded distribution of "Sweetone," Mr. Lane said.



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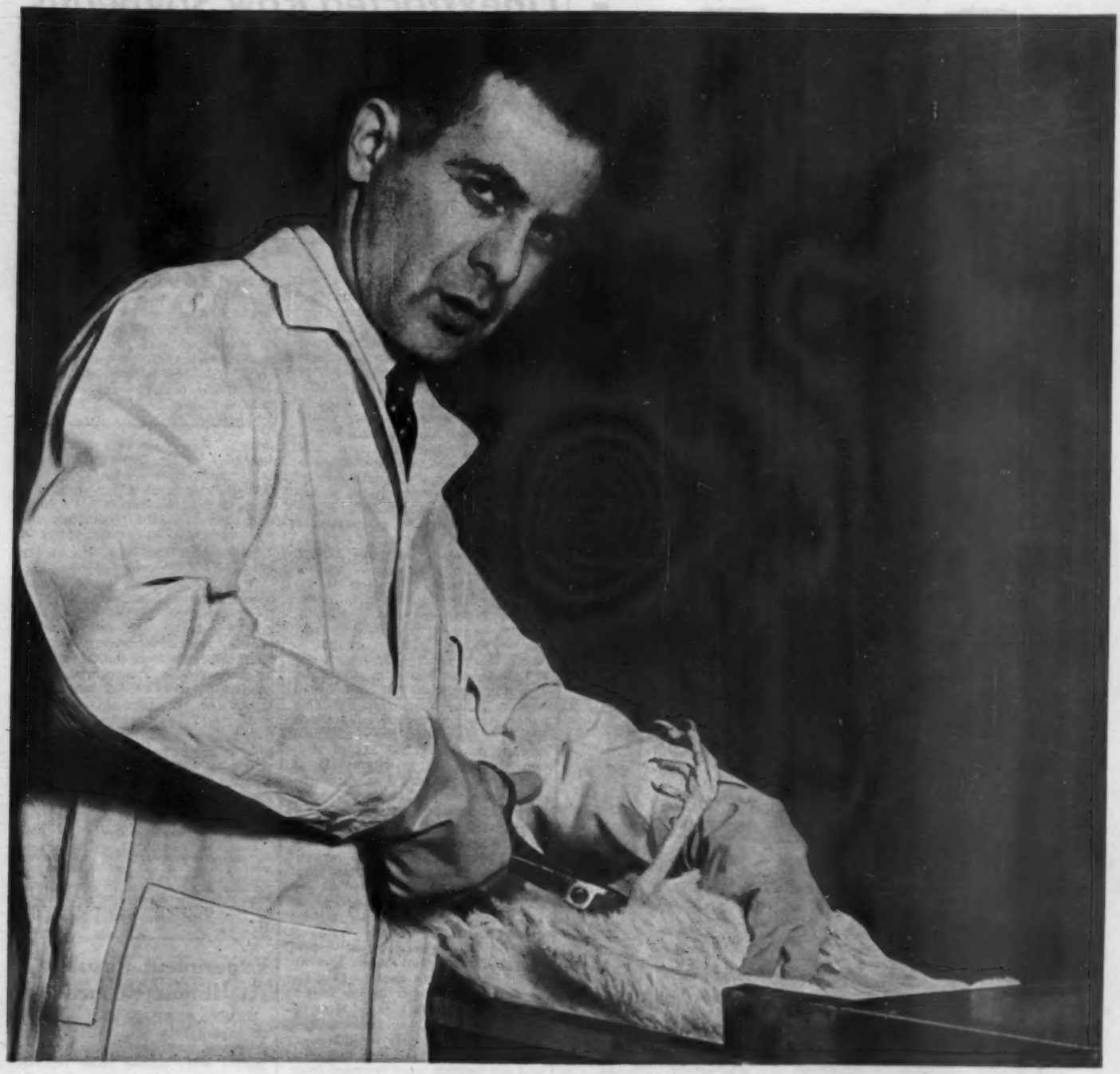

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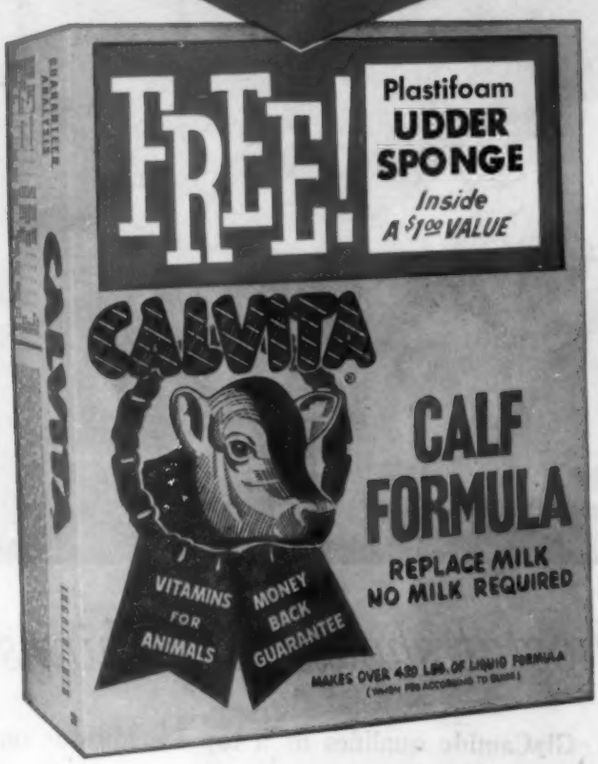

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Unextracted Raw Soybeans For Laying Hens

"Egg production and egg weight can be maintained on a diet in which the major source of protein is unextracted ground soybean meal."

By Dr. Paul Griminger and Dr. Hans Fisher
Rutgers University

It has previously been shown in this laboratory that the hen is insensitive to the growth-inhibiting properties of crude soybean inhibitor, and that raw soybean oil meal, when fed at the 15% protein level and properly supplemented with methionine and cyanocobalamine, would support a level of egg production equally as good as that from properly heated meal under the same conditions (Fisher, Johnson and Ferdo, 1957). The present experiment was undertaken to investigate whether unextracted raw soybeans would be an equally satisfactory protein source for the laying hen, providing simultaneously considerable quantities of high-calorie fat.

Ten SC White Leghorn pullets (two groups of five) in good production were assigned to each of the diets. The pullets were kept in individual cages provided with community feeders. The percent of fixed ingredients of both diets were: alfalfa, 3; corn distillers solubles, 2; dried whey, 2; limestone, 6; dicalcium phosphate, 2; sodium chloride, .5; vitaminized cerelose, 1, and yellow corn, 40.6. One hundred mg. manganese sulfate was added per kg. of diet. The vitaminized cerelose provided 1,500 I.U. of vitamin A, 750 I.C.U. of vitamin D_3, .3 mg. of folic acid, and 5 μg. of cyanocobalamine per kg. of diet.

The variable ingredients were as follows: for Diet 1, 29% ground soybeans (33.2% protein) and 13.9% ground oats; for Diet 2, 18% conventional dehulled soybean oil meal (50% protein), 5.2% soybean oil and 19.7% ground oats. The soybean oil was added to Diet 2 in order to more nearly match the nutritive value of both diets from the point of view of energy. The amount added approximated the amount contained in the unextracted soybeans used in Diet 1.

The pullets were kept on their respective diets for six weeks. Feed consumption and body weights were measured weekly, and egg production and egg weights were recorded daily. The pullets had 14 hours of light, and the room temperature was kept at 65-70° F. At the end of the six-week experimental period all 20 birds were given a conventional laying mash and observed for another week for possible changes in any of the measurements previously recorded.

Table 1 shows that good production was maintained in all groups. Throughout the experimental period egg weights improved in all groups in essentially the same way for both treatments. The birds on the unextracted raw soybean diet (Lot 1) consumed slightly more feed, which may be an expression of the greater fiber content of this diet, despite the approximate isocaloricity of both rations (Fisher and Weiss, 1956), or of a lower energy level due to a poor utilization of the non-extracted fat, as recently shown with chicks at Cornell University. A return to the stock diet did not precipitate significant changes in the production pattern, but the average body weight in all groups increased by 50-100 gm. from the previous week.

It is customary in many mixing operations to add a small amount of fat to make the feed less dusty and give it a better appearance. Diet 1 (whole ground soybeans) did not seem to benefit from the oil provided by the soybeans; it appeared dry in comparison with Feed 2, which contained the same percentage of fat, though added separately.

It is concluded that egg production and egg weight can be maintained on a diet in which the major source of protein is unextracted ground soybean meal.

EDITOR'S NOTE: This article is a paper of the Journal Series, New Jersey Agricultural Experiment Station, Rutgers University, the State University of New Jersey, Department of Poultry Science, New Brunswick, N.J. The authors are on the staff of the poultry science department at Rutgers.

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Fisher, H., and Weiss, H. S., 1956—Feed consumption in relation to dietary bulk and energy level: the effect of surgical removal of the crop. Poultry Science, 35: 418-423.

Experiment Results At Illinois Reported

DIXON SPRINGS, ILL. — Results of experiments with pelleted, high roughage, complete rations and stilbestrol were among those reported in a roundup of recent work at the University of Illinois Dixon Springs Experiment Station.

G. F. Cmarik, in reporting on the self-feeding of pelleted, complete rations to yearling and two-year-old steers, said that the feeding performance on a ration containing 40% roughage and 60% concentrate was similar in all respects to the performance on a ration made up of 20% roughage and 80% concentrate.

G. R. Carlisle, University of Illinois livestock specialist, stated that producers "stand to lose a big bonus if they do not include stilbestrol in their steer feeding programs." Mr. Carlisle listed results of several feeding trials and the extra gain from stilbestrol, which ranged from 41-80 lb. per steer.

TABLE 1. Performance of Pullets Receiving Raw, Unextracted Ground Soybeans or Standard (heated) Soybean Meal

Soybean meal type	Egg production %	Av. egg weight gm.	Av. daily feed consumption gm.	Body weight— Start gm.	Body weight— 6 week av. gm.
Raw, unextracted soybeans*	74	51	112	1,670	1,660
	69	51	102	1,590	1,590
Standard (heated) soybean meal*	79	51	97	1,580	1,680
	70	50	99	1,540	1,580

*Duplicate groups.

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DR. L. D. MATTERSON
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Putting Research To Work

BY SPENCER H. MORRISON, PH.D., D. V. M.

The Net Energy of Blackstrap Molasses for Lactating Dairy Cows.

● G. P. Lofgreen and K. K. Otagaki, University of Hawaii; Journal of Dairy Science, Vol. 43, No. 2, February, 1960, pp. 220-230.

ABSTRACT

Feeding trial methods for estimating net energy contents of feeds are a means of obtaining information regarding the energy content cheaper and quicker than by classical methods involving respiration calorimeters. Net energy is theoretically much preferred by most authorities as a measure of the feeding value of feedstuffs over total digestible nutrients or digestible energy.

The Hawaii researchers fed a basal ration of pineapple bran, soybean meal, dicalcium phosphate and trace mineralized salt. The basal consisted of 66% pineapple bran and 34% soybean meal with the minerals being supplied by free access to a 50:50 mixture of trace mineralized salt and dicalcium phosphate. The protein content was such that on the restricted basal it was sufficient for full milk production, with energy being the only limitation.

The total feed requirement for each cow was determined by calculating the amount of basal required for maintenance with an amount added for lactation. In the case of the restricted basal, only one half the lactation allowance was added to the basal maintenance ration. The upper levels of Morrison's (1956) standards were used in determining the allowances.

Two Groups of Cows

Eight Holstein cows just past peak of lactation were divided into two groups of four cows each according to date of calving and assigned to two blocks of an extra-period, Latin-square design.

The net energy of cane molasses was determined when added to the basal ration at levels of 10 and 30% of the total ration. Concurrent with the experiment, the TDN, digestible crude protein and digestible energy were determined on all rations in conventional digestion stalls with approximately 1,000 lb. dairy steers. In all, six trials were run on the basal and the basal plus 10% molasses, and five on the basal plus 30% molasses.

TDN was calculated from the digestible organic matter. Energy equivalent to weight gain and milk energy were determined also in the feeding trial with lactating dairy cows.

Any increased energy yield brought about by feeding the basal ration in comparison with the limited basal ration represents the net energy of the increase in basal consumed, providing that weight changes of cattle are constant or corrected. Thus, by measuring the energy yield when molasses was added to the basal diet, the net energy of molasses can be determined.

"High Loss of Energy"

By using this method, it was found that when blackstrap molasses was fed at a level of 10 and 30% of the total ration, the net energy of the molasses was 68.1 and 23.1 megacalories per 100 lb., respectively. When the comparison between these values and those of TDN and digestible energy were made it was shown that when molasses was increased from 10 to 30% in the ration there was an extremely high loss of energy which was not due to fecal losses. The study did not show at what point this loss occurred between 10 to 30% of the ration, and further study must be done to determine it.

Besides the unusually high loss of energy when 30% of molasses (8.5

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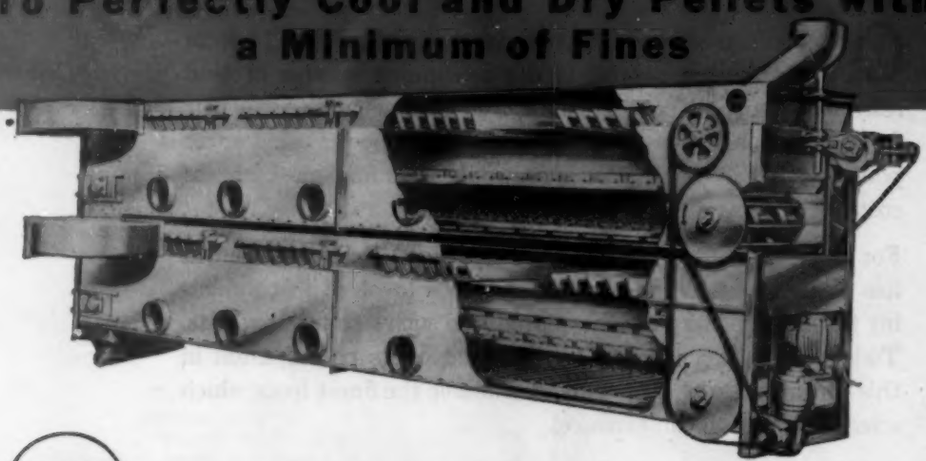

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lb./cow/day) was fed, the milk composition was appreciably affected by being significantly lower in butterfat percentage and solids-not-fat, all of which resulted in a lowering of net energy value per unit of milk produced. Also, the flavor score of such milk tended to lower and appeared to be associated with an increased rancidity. Possibly, some of these effects were due, at least in part, to the type of roughage fed in these experiments—pineapple bran in rather limited quantities.

COMMENT

The results of this work with lactating dairy cows are quite similar to work at the same station with fattening steers where molasses was fed at levels of 10, 25 and 40% of the ration and net energy values of 68.9, 37.8 and 35.1 megacalories per 100 lb. of molasses were obtained, respectively.

The rations used in the fattening trials were, of course, quite different in composition and probably at least partially accounted for the surprisingly high values of molasses for fattening, and the fact that they were as high as those for milk production. Also, of course, the over-all efficiency of the dairy cows used in this study were relatively low and at least partially account for the net energy of molasses for lactation being no higher than that for fattening.

This study points out one of the commonly accepted facts on the use of molasses for dairy cattle—that moderate amounts of molasses can be used very efficiently, but that too high levels are inefficiently utilized and may actually be quite costly and wasteful. We need more information to pin-point at what level from 10 to 30% molasses the law of diminishing returns makes increased usage undesirable.

TO MOVE OFFICES

HOUSTON, TEXAS — Shellbuilder Co. will move its offices to Marine Building, 1305 Prairie, effective May 15, according to Fred Gaines.

'Illinois System of Swine Nutrition' Outlined by College

URBANA, ILL.—The University of Illinois has issued a news release which suggests that producers use soybean oil meal as the only supplementary protein source for their hogs and tells of two rations which are suggested for feeding to all hogs except baby pigs.

The news release says Dr. D. E. Becker has developed a new "Illinois System of Swine Nutrition" in which he states three feeding recommendations. In this system he outlines two corn and soybean meal fortified rations.

The following recommendations are those on which Dr. Becker bases his hog rations:

1. Feeding soybean meal: Dr. Becker recommends soybean meal as the single supplementary protein source in fortified corn rations.

"Farmers usually feed a mixture of plant and animal protein sources because a mixture provides the essential amino acids and vitamins the pig needs," Dr. Becker states. "However, extensive tests show that soybean meal provides all the necessary amino acids. Essential vitamins can be added to the ration in a vitamin supplement."

He cites soybean meal as "the cheapest source of supplementary protein in the Midwest."

2. Feeding complete rations: Dr. Becker recommends feeding complete rations because "(1) complete rations can be cheaper than free-choice feeding, (2) they allow a farmer to make maximum use of soybean meal, (3) they are better adapted to mechanized feeding programs, (4) they frequently produce faster gains, (5) they produce more uniform pigs and (6) they allow a farmer to control the supplement intake of pigs."

3. Feeding in drylot: Dr. Becker supports the trend toward drylot feeding. He believes that land suitable for intensive grain production "does not return enough money when used for pasturing hogs."

Dr. Becker says the two complete rations he has formulated contain the same ingredients—ground yellow corn, soybean meal, vitamins and antibiotics—and vary only in quantities of each ingredient. One, "Ration 16," is for pigs weighing between 30 and 100 lb. and the other, "Ration 12," is for pigs weighing between 100 and 200 lb.

"These two rations should help farmers lower feed costs," Dr. Becker says. "They feature the cheapest feeds available to midwestern farmers. Since the two rations contain the same ingredients, farmers can easily mix them or have a local elevator mix them."

Results of Farmer's Mineral Test Related

GUELPH, ONTARIO—An Ontario agricultural representative has reported the fluctuating butterfat content results of a test conducted by a Burriss farmer with mineral and no-mineral feeding.

Dick Heard, reporting on results achieved by Angus Hyatt, said, "His cows dropped in the butterfat content of their milk when he stopped feeding minerals last June." Then when he started to feed minerals again in September, the milk test went up.

The figures for the test period were: January, February and March, 3.6%; April and May, 3.5%; June, July and August (no mineral fed), 3.4%; September, 3.9%; October, 3.6%; November, 4.2%, and December, 3.5%.

New Merck Salesman

RAHWAY, N.J.—Robert D. Dueland has been named an animal health sales representative to serve eastern Iowa for Merck Chemical Division, Rahway. He will report to David G. Stephen, Northwest region manager of Merck agricultural products in Minneapolis.

Mr. Dueland received his bachelor of science degree in animal husbandry from Iowa State University, Ames. Before joining Merck, Mr. Dueland worked as a retail field serviceman with a farmers cooperative elevator company in Waukee. He will live in Cedar Rapids, Iowa.

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New Iowa Mill Built for Efficient Operation of Bulk and Bag Services

By AL P. NELSON
Feedstuffs Special Writer

Customers served from the new, modern feed manufacturing plant at Cherokee, Iowa, one of five plants owned and operated by Walnut Grove Products Co., Inc., which has general offices in Atlantic, Iowa, have the option of bulk or bag feeds. Moreover, the plant offers the convenience of service to bulk feed customers in a separate area from those who purchase bag feeds, and the bulk feed building contains equipment to provide specialized mixing service for customers who desire it.

The bulk feed building's equipment includes a 2-ton Strong-Scott mixer and a Howe hopper scale with weight recording tapes. This building also contains the plant's grain processing equipment. Corn from the three 7,000 bu. storage tanks is cleaned and then ground through a 100-h.p. Jacobson hammer mill or cracked in a Roskamp grain roller mill. The processed grains are conveyed by air to the storage tanks. Incoming truckloads of grain or bulk feed from the ten 20-ton overhead bins are weighed on a 50-ton Fairbanks-Morse scale.

About 20% of the firm's output is bulk feed. Customers can call for bulk feed, or have it delivered in a pneumatic unloading Dorsey 12-ton bulk truck.

All phases of the plant operation, from the unloading of ingredients to the final loading of the finished supplements, are accomplished by a 15-man crew. The capacity of the plant is 115 tons per 8-hour shift, says Mose Bell, plant superintendent.

When ingredients are received at the plant, they are immediately sampled and subjected to moisture and sieve tests. The samples are then sent to the firm's headquarters at Atlantic for further tests in the analytical laboratory.

Ingredients can be received by both truck and rail. A 40-ft. long receiving hopper will handle, for example, a trailerload of soybean meal in 20 minutes. All grain traps on the trailer can be opened at one time, reports Mr. Bell. The ingredients are then conveyed to the main elevator, through a distributor head and into 14 ingredient bins.

There is also a rail side receiving pit. The rail siding runs the length of the mill and the warehouse to facilitate the unloading of both bagged and bulked ingredients. A power shovel is used to assist in car unloading. Hopper cars are unloaded by means of an auger from the track to the receiving hopper. Rail cars are weighed on a 120-ton Fairbanks-Morse track scale.

80% Pellets

About 80% of the firm's production is pelleted feeds. These are produced by two California pellet mills of 100 h.p. capable of producing 12-15 tons per hour each. The mill has two Sprout-Waldron coolers, which are set up in the basement.

Premixes are made at Atlantic. At the Cherokee mill the premixes are weighed into a separate Howe premix scale. The other ingredients are weighed through a Howe automatic hopper scale, which extends into the basement from the first floor. Dracon drag conveyors and a bucket elevator convey the ingredients over sieves and magnets to a 2-ton Sprout-Waldron horizontal mixer on the third floor. Liquids are added in a Wenger blender.

The firm has Bemis bagging equipment, which can turn out 19 bags per minute. After bagging, the feeds are put on pallets. Two Towmotor and one Clark fork trucks are used to store the feed in two warehouses set at right angles. One warehouse is 60 by 200 ft., and the other warehouse is 60 by 160 ft. The shipping office is located at the end of one warehouse, near the dock where trailers are loaded with bagged feed for shipment to the company's depots or directly to the customer.

The Cherokee plant has six trailers, each of 17½-ton capacity, making deliveries in the area. Usually, two trailers are being loaded while the others are making deliveries.

Maintenance Shop

Mr. Bell reports that the plant works a 5-day production schedule, while Saturdays are devoted to plant and truck maintenance. A separate service shop, well equipped with welding equipment and power tools, enables the handling of both major and minor repairs.

Except for the hand operation involved in the Howe premix scale, the Cherokee plant is a push-button mill. The Westinghouse central control system, using breakers instead of fuses, is used and has proved "very effective," Mr. Bell says. If a control operation goes amiss or a breaker is defective, a light appears on the first floor control board. The motors used in the mill have approximately 800 h.p. capacity, states Mr. Bell.

The gas-fired Nebraska boiler is

FROM THE AIR—This is a bird's eye view of the Walnut Grove feed plant at Cherokee, Iowa. Bulk feed facilities are in an area separated from the bag feed area.

SUPERINTENDENT—Mose Bell, plant superintendent, shown here at his desk, trained 15 employees before new Walnut Grove feed mill was opened. Training aids include flow charts, plant tours and dry runs.

TRACKSIDE VIEW—This view, from the ground up, dramatizes the height of storage tanks and mill structures at the Cherokee, Iowa, plant. Ingredients are received by both truck and rail.

PELLET COOLERS—These two Sprout-Waldron pellet coolers are in the basement of the Walnut Grove feed mill.

BAGGING OPERATION—Plant employees are shown operating Bemis bagging equipment.

LOADING BAGGED FEED—Fork lift truck moves pallets of bagged feed to a big trailer for loading. Bags are reloaded by hand on smaller pallets in the truck. Two trailers like this usually are being loaded while four others are making deliveries.

MOLASSES BLENDER—Mose Bell (left), demonstrates use of Wenger molasses blender to visitor in Walnut Grove feed plant at Cherokee, Iowa.

WEIGHING—Man on right operates scale hopper automatically, while man on left, also with a scale, dumps special ingredients by hand. All ingredients go into a large hopper in basement of the Cherokee, Iowa, plant, and are then moved to mixers.

located on the first floor. An oil stand-by is provided for emergency service. In the basement are storage tanks for animal fats, molasses and liquid fish solubles. The molasses tank has a 2-carload capacity.

Obtaining local help in operating the large new mills of this type was handled efficiently by Mr. Bell. The 15 employees were given specific training before the plant was opened. Through the use of flow charts, tours and dry runs the employees were trained in the various steps of efficient plant operation.

Walnut Grove is a direct-to-the-customer feed organization. Salesmen in various areas visit feeders and channel feed orders and deliveries through Walnut Grove's more than 30 depots.

Other manufacturing plants are located in Atlantic, West Liberty and Independence, Iowa, and Elkhorn, Neb. Walnut Grove serves livestock producers in eight Corn Belt states.

PELLET MILL — Operator checks operation of one of two 100 h.p. California pellet mills. Each mill is capable of producing 12-15 tons an hour. About 80% of the feeds produced in the Iowa mill are in pellet form.

HAMMERMILL—shown here is the 100 h.p. Jacobson hammermill in the Cherokee, Iowa, plant's bulk feed building.

Bermuda Grass Meal May Sub for Alfalfa As Pigment Source

CLEMSON, S.C.—Processed coastal Bermuda grass meal may be a satisfactory substitute for commercial alfalfa meal as a source of the yellow pigment responsible for egg yolk color, according to preliminary research at Clemson College. Tests compared these materials and utilized diets that also contained corn or milo.

The results showed that egg yolks from birds consuming a milo diet with no forage were very pale in color and scored an average of 6.5 in egg yolk color standards with 14-15 considered a normal colored yolk.

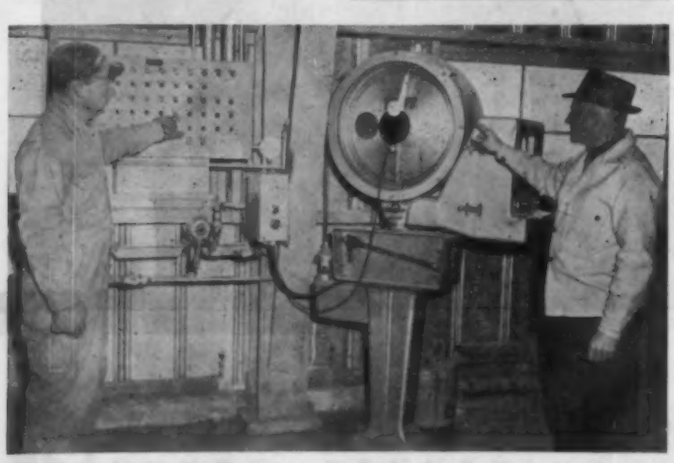
Egg yolks from the control group receiving the corn-alfalfa diet scored an average of 14.8.

When the alfalfa of that diet was replaced with coastal Bermuda grass, the yolks were slightly darker with a score of 15.

When 5% alfalfa and 5% coastal Bermuda grass were added to the milo diet, the egg yolk colored scored 13.2 and 13.5.

At the 10% level of forage, eggs from hens on alfalfa scored 14.4 as compared with 14.3 for hens on the coastal Bermuda grass.

According to the Clemson poultry department, the abundance of coastal Bermuda in South Carolina stimulated the interest in replacing alfalfa with the Bermuda grass meal.



PANEL AND SCALE—Checking operation of control panel and scale used for weighing and loading out are Mose Bell (right), plant superintendent, and an employee.

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Purdue Panel Views Feeding Outlook at Marketing Clinic

By WILLIAM L. MADIGAN
Purdue University

LAFAYETTE, IND.—A panel of Purdue University animal, dairy and poultry scientists recently gave management personnel of agricultural marketing firms a look ahead at feeds and feeding.

The panel, appearing before the grain and feed marketing session of Purdue's fourth marketing clinic, was one of four. Others dealt with dairy, poultry and livestock and meat marketing problems. Some 350 persons concerned with agricultural marketing attended the day-long short course.

Dr. J. H. Conrad, swine nutritionist, described as the newest development in hog feeding "the use of fortified corn-soybean meal rations for growing-finishing swine."

These rations, when properly fortified, "will produce results equal to or better than rations supplemented with other sources of protein," he said.

"Sufficient information is available concerning the pig's requirements for amino acids, vitamins, minerals and trace minerals so that, from a feeding and nutritional viewpoint, we have arrived at the place where we can feed a corn-soybean meal ration to growing-finishing swine with excellent results, provided the proper fortification is added," he said.

Poultry Nutrition

Discussing recent discoveries in poultry nutrition, J. C. Rogler, listed these "recent significant contributions":

- Demonstration that selenium may have a biological function as shown by the ability of this element to correct exudative diathesis in vitamin E deficient chicks.
- Establishment of a zinc requirement for chicks and poults and the observation that turkeys may need supplemental zinc on practical rations to assure maximal growth and bone development.
- Positive evidence that iodine is needed for hatchability.
- Improvement of western barley by soaking in water or by enzyme treatment.
- Accumulating information on a lowered protein requirement for layers in the north on rations comprised mainly of corn and soybean oil meal.
- Possible use of unextracted soybeans, properly processed, in broiler rations, if the soft fat produced does not prove to be too objectionable.

Stilbestrol, Antibiotics

Dr. T. W. Perry, animal scientist, said improved supplements for beef cattle would be developed during the years ahead. "Only two feed additives—diethylstilbestrol and antibiotics—are of economic importance to beef cattle currently," he asserted.

Use of diethylstilbestrol resulted in increased rate of gain of approximately 15%, but the heavier animals at the same age do not carry any more finish, Dr. Perry pointed out.

Use of antibiotics has been very effective in controlling shipping fever, colds, foot rot and other infectious diseases, he added. Cattle fed antibiotics usually gain from 3-8% faster than those not fed antibiotics, Dr. Perry said, and their carcasses can be expected to grade higher.

Dr. N. S. Lundquist, dairy scientist, predicted that feeding practices for dairy cattle would change considerably in the near future, "with serious consideration given to adjusting our feeding practices according to the feedstuffs that are to be used."

Dr. A. William Jasper, assistant director, commodity division, American Farm Bureau Federation, told a poultry session that the industry must alter a declining consumption of eggs per person in a ballooning population.

Poultry farm operators will take on more of the characteristics of the managers of small industrial plants in the city, Dr. Jasper said. Producers of the future will be producing in a market environment where highly standardized products are required.

"Voluntary production-marketing control" will play a big role in the future of the industry, Dr. Jasper added. In broiler and turkey production, for example, a large group of producers would market their birds through the same processing plant, produce the same kind of broiler or turkey, use the same feed, start a batch or flock of birds at specified intervals, use the same management practices (as outlined in their contracts) and market the broilers or turkeys when the so-called "integrator" says "let 'em go."

Mrs. Consumer is basically responsible for any changes in the marketing system, Carl J. Reith, vice president of the Kroger Co., Cincinnati, Ohio, said. She is not, however, going to write her specifications on a billboard for the world to see, he added.

"It is up to us as retailers, as processors and as producers to use creative thinking to produce the products that successfully meet the desires of Mrs. Consumer," Mr. Reith pointed out. "After all, she is my boss and yours."

Specification Buying

Robert H. Borchers, executive vice president, Armour and Co., Chicago, predicted specification buying by the meat industry would become more exacting.

Mr. Borchers said that excellent group action developed interest in the meat-type hog. The percentage of meat-type hogs going to market has increased slowly, but the per-

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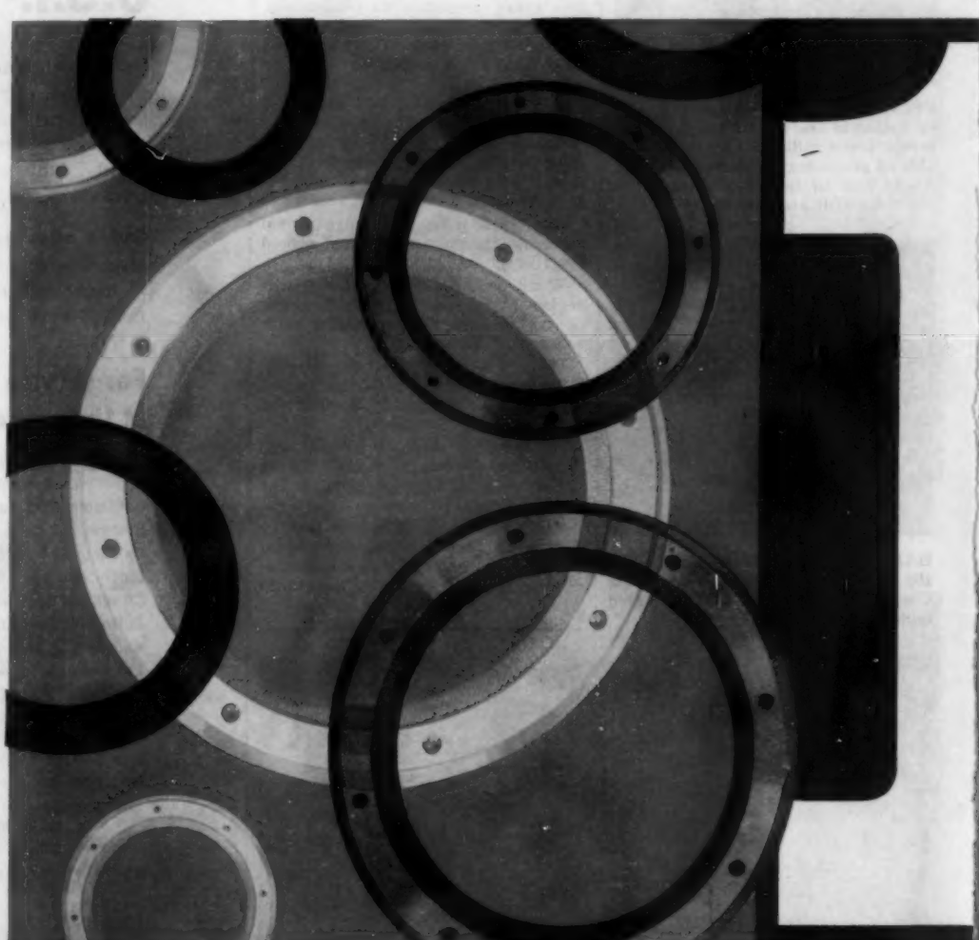

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centage of lard-type hogs has greatly decreased, he added.

The packing company executive listed two major developments in beef from the standpoint of specifications and group action. These are the "tremendous increase in demand for beef which will grade U.S. choice" and the sharp reduction in the percentage of beef which is sold after it arrives at the point of sale.

Cattle feeding operations will tend to become bigger and more specialized, Mr. Borchers said. Economic factors will lead cattle breeders and feeders to produce beef which will bring the top dollar and continued improvement in tailored pork quality by hog producers will regain greater acceptability in the meat trade, he concluded.

Transportation

Robert C. Haldeman, transportation economist with the U.S. Department of Agriculture, said that during the first season of navigation on the St. Lawrence Seaway some 112 million bu. of U.S. grain were exported overseas. The volume will increase this year, he added.

Barge grain traffic on inland waterways—and grain products traffic—will continue to rise, Mr. Haldeman said. Truck transportation of grain in heavy volume is here to stay, although it may be held in check in selected areas by rail rate adjustments, he went on.

Railroads are making a determined effort to meet competition from other carriers when and where they find it and further selective rate changes will be made, Mr. Haldeman declared.

"To stay in business now and in the future, elevator operators must be alert to transportation trends in their industry," the economist said. "The picture is changing rapidly."

Hassil E. Schenck, former president of the Indiana Farm Bureau, declared that group action is absolutely necessary if farmers are ever to get fair consideration. He described marketing associations as "a must."

J. Carroll Bottum, Purdue agricultural economist, said technological progress in the 1960's would force important adjustments on farms. He listed among these changes:

- More intensive farming of productive Corn Belt land and shifting of less productive land to grass, timber, recreation and conservation. . . . The rate and amount of this shift, which may reach 40-60 million acres, will depend to some degree upon government farm programs.
- Population movement out of agriculture into other occupations will continue but, perhaps, at a slower rate.
- Farms will become fewer and larger, but the family farm will prevail in the decade ahead for economic reasons.
- The trend toward specialization in livestock production will continue but will not separate crop and livestock production.
- The need for superior management will increase.
- Greater coordination between supply firms, farm production and marketing will be brought about by contracting ahead and selling more according to grade and specification and buying in the same manner.
- Mechanization of livestock enterprises will continue and the number of these enterprises on each farm will decline.

Charles E. French, Purdue agricultural economist, said marketing firms face four basic adjustments in the 1960's.

There will be reduced farm supplies and increased bargaining power of farmers, he said. Adjustments must be made to competing demands for the food dollar, tempered by fewer marketing firms and closer government scrutiny upon the operation of these, Mr. French added.

Firms must make internal adjustments to modern management concepts, involving such things as digital computers and automatic processes, he said. Finally, they must adjust "to the pleas of society by accepting added responsibility for improvement in the general morality of business practices," Mr. French asserted.

RENDERERS' SPEAKER—Robert J. Fleming, president of the National Renderers Assn., is shown addressing the Pacific Coast Renderers Assn. in San Francisco. Current research projects sponsored by the national association are concerned with developing better products for feed manufacturers, Mr. Fleming told the group. (Feedstuffs, Feb. 27.)

Montana Gets Grant

NEW YORK—Montana State College has accepted a grant from American Cyanamid Co., to further evaluate Aureomycin chlortetracycline when fed to beef cattle under winter conditions. Dr. Oscar O. Thomas, in charge of the studies, is conducting tests with heifers and is administering the antibiotic both in pelleted feed and in mineral-salt mixtures.

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Management, Nutrition and Disease Covered at North Carolina Short Course

By Special Correspondent

RALEIGH, N.C.—Field servicemen for the North Carolina feed industry discussed livestock and poultry management, nutrition, disease control and prevention and other related topics during their 11th annual short course at North Carolina State College.

Feedmen met with veterinarians for the state's first joint program to discuss mutual problems. Field service men held their own separate program on poultry and livestock.

College professors and research workers and representatives of the feed industry participated in discussions on poultry disease, leukosis, North Carolina random sample tests, disease prevention versus diagnosis and treatment, the field service men's management program, effects of stress on production efficiency, leptospirosis, the electronic brain to aid dairymen in feeding and management, swine management and production and marketing of feeder calves in North Carolina.

Dr. C. W. Barber, poultry science department, discussed leukosis problems. He stated that among the laying flock chicken population, the incidence of the avian leukosis has increased in some flocks, decreased in other flocks and shown no marked change in others.

"A few years ago," he said, "leukosis was not a problem among broiler flocks. Recently, the incidence of the visceral (skin), osteopetrotic (bone) and neural (nerve) types has been increasing so that it now does appear as a production problem in some areas."

He suggested two means, revealed from research, which give at least partial prevention of leukosis: (1) Selective breeding or breeding for resistance and (2) isolation rearing or improved management.

Improved management methods would include brooding in clean environment, broding in an area well separated from older chickens, providing separate caretaker, maintaining isolation management from the first day and as long as possible and rearing on clean range.

"The degree to which these means of control of leukosis are put into practice is quite likely to determine, for each grower, the answer to the question, 'Are Leukosis Problems Increasing?'" he concluded.

Disease Agents

Dr. F. R. Craig, poultry science department, covered disease agents. He praised field servicemen, county farm agents and vocational agriculture teachers for the excellent service they have rendered to the livestock and poultry industries by their sound supervision of disease programs which have been developed with close cooperation with management specialists and veterinarians.

Dr. Craig outlined nine factors in understanding disease prevention and control recommendations:

(1) Causes of diseases.

(2) Animal resistance to invasion.

(3) Differences in degree of exposure to disease agents.

(4) Routes agents leave the animal's body.

(5) Survival of disease agents in nature.

(6) Changes in pathogenicity.

(7) Reservoirs of infection.

(8) Drug resistance of organisms.

(9) Destruction of organisms by disinfection.

Dr. H. W. Garren, poultry science department, discussed the effects of stress on production efficiency. "Domestic animals," he said, "are the greatest profit to man only when a state of equilibrium or balance exists within their body." The animals, he said, can maintain this balance under a wide range of environmental conditions.

He said that a state of balance does not exist and a condition of stress is present with a wide variety of stressors such as extreme cold, extreme heat, starvation or bad management conditions.

With unbalance, stress hormones increase in the blood. These hormones increase the resistance of the animal to the stressor, but at the same time, the animal will not grow, lay eggs, produce milk or reproduce as profitably as it would without the stressor.

Swine Management

Dr. J. W. Kelley, in charge of the college's Animal Husbandry Extension, spoke on swine management. He stated that profit or loss in swine production is often determined by the job done in controlling diseases. A good swine feeding and management program will help in preventing diseases, but the best programs will fail if certain rules are not followed in a health program.

He gave six suggestions to prevent brucellosis, leptospirosis and swine erysipelas.

(1) Isolate all additions to the breeding herd for 21 days. Test them for brucellosis and leptospirosis before adding them to the herd.

(2) Purchase breeding animals from herds testing negative for brucellosis and leptospirosis.

(3) Blood test all breeding animals for these diseases when the disease control program is initiated.

(4) Vaccinate pigs at six weeks of age against cholera, using a modified live virus with ample serum. If swine erysipelas is on the farm or in the area, pigs should be vaccinated against the disease.

(5) Gilts should be re-vaccinated three weeks before breeding for cholera and leptospirosis. Older breeding animals should be vaccinated yearly for cholera and leptospirosis.

(6) Sows should be wormed before

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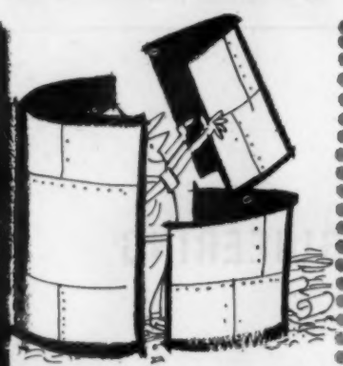

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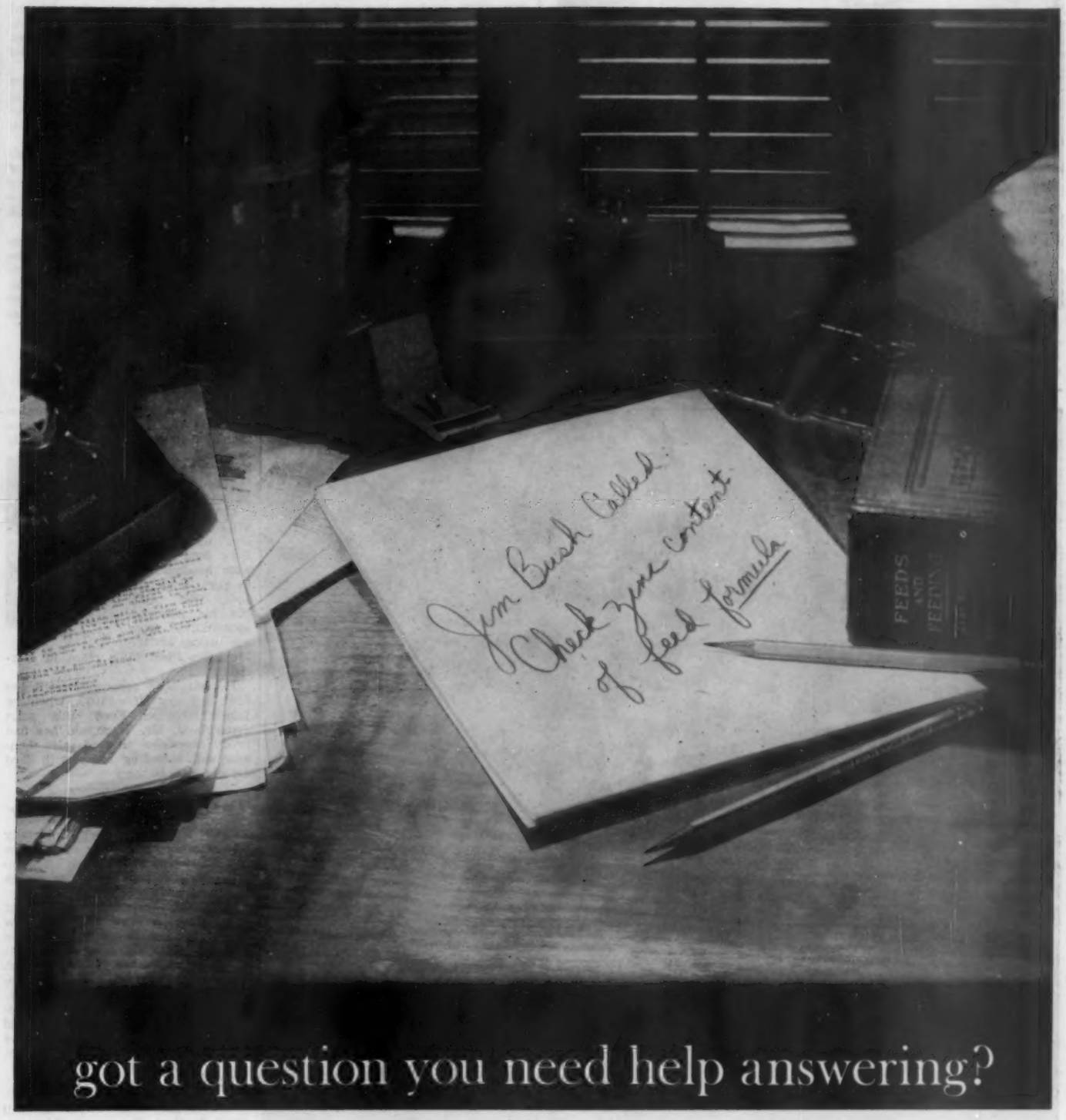

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NEW LABORATORY—This is an exterior view of new flour and feed laboratory erected by Hubbard Milling Co., Mankato, Minn., as the second floor over part of a new warehouse. Hubbard officials say the lab is readily accessible from the ground floor and from the second floor of the flour mill.

breeding and placed on clean pasture. They should be wormed again with a piperazine wormer just before farrowing.

Electronic Brain

M. E. Senger, dairy extension, explained the electronic brain as an aid in feeding and management for the dairyman. He said the Dairy Records Processing Center started its work in 1958 and is one of 10 such centers in the nation.

The tester goes to the farm once a month, gathers information on cows, butterfat content of milk, etc., and sends the information to the Dairy Records Processing Center at State College. These facts are scientifically calculated by the I.B.M. machine and the complete record is mailed to the dairyman within 10 days.

The cost of obtaining this complete record is 10¢ per cow per month, according to Mr. Senger. The farmer gets a complete picture of his feeding and management. The report shows whether he is over or under feeding, indicates how much to feed each cow, when to dry off and breed cows, gives feed costs per 100 lb. milk produced and gives the amount of milk produced per man employed (the labor cost).

According to Mr. Senger, there are 700 dairymen in North Carolina using D.H.I.A. records and 340 have transferred to the electronic brain calculations.

"In many incidences," he concluded, "this feed information helps farmers to feed more efficiently, reduce feed costs, and enables dairymen to manage their herd for peak performance."

The short course for field servicemen is offered annually by the departments of poultry and animal industry in cooperation with the College Extension Division and the North Carolina Feed Manufacturers Assn.

District Sales Head Named by McMillen

FORT WAYNE, IND.—Promotion of Clyde W. Thompson to the position of district sales manager in its eastern district has been announced by McMillen Feed Mills.

C. W. Thompson

Mr. Thompson, who previously was manager of hog feed sales with headquarters in Fort Wayne, Ind., will carry out his new responsibilities from an office at the McMillen Feed Mills plant in Harrisburg, Pa.

He has been associated with the feed industry since 1939, when he joined McMillen Feed Mills' sales department. Mr. Thompson has had broad experience in feed sales management, including work with feed dealers and farmers.

Taste Preference Study

NEW YORK — Cornell University is determining the taste preferences of poultry and swine in an effort to improve the palatability of drugs and feed additives.

The studies are aided by a grant from American Cyanamid Co., New York, and are under the direction of Dr. Morley Kare of the department of veterinary physiology. Dr. Kare's investigations include the development of new methods for evaluating the acceptability of drug preparations added to the water and feed, and the addition of palatizers in an effort to improve acceptance.

To Sell Liquid Feed

ROSWELL, N.M. — The Mitchell Seed & Feed Co. has sold all its equipment for the mixing of dry feed. The firm, which is headed by E. W. Mitchell and associates, has become a distributor for Morea premix liquid feed.

The firm has been given an area which includes all of New Mexico east of the Continental Divide, with the exception of Quay, Curry and Roosevelt counties in the northeastern part. The firm also will distribute the liquid feed in nine counties along the extreme western edge of Texas.

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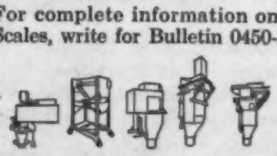

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FEED CONTROL COMMENT

By BRUCE POUNDSTONE

Secretary, Association of American Feed Control Officials

Kentucky Agricultural Experiment Station, Lexington

Keeping Up With Approved Drugs

As "wonder drugs" have grown in popularity in feed manufacturing, so has the problem of knowing what drugs have been approved, levels of use, combinations, directions for use and appropriate claims as to purpose and efficacy. The number and complexity of drugs has increased this problem of having clear-cut authoritative information.

The feed manufacturer particularly has found himself faced with literature from manufacturers, the Federal Register, gleaning what he can from news stories in the trade journals, listening to recommendations from salesmen of these products and finally attempting to get a label approved by FDA and feed officials in the states. The need for simplified yet authoritative statements in this area has long been apparent.

Attempts have been made on the part of many to be of assistance. To mention two comprehensive reports as illustrations, one of the most complete was first published in May, 1958, by the Texas Feed Control Service under the heading "Drugs in Animal Feeds." Recently the magazine "County Agent and Vo-Ag Teacher" brought out a pamphlet entitled, "Feed Additives Guide," based upon articles that appeared in this publication last fall.

Medicated feed labeling committee suggests card system—Ever since the medicated feed labeling committee was appointed this group has been wrestling with this problem. For the past year and a half Dr. Quackenbush, chairman of the committee, has been perfecting a card system which should be of material help in this area. His original thought was to prepare one card for each drug and a card for each combination of drugs. These were to be distributed to feed control officials. As this idea moved forward it became clear that these cards would also be of interest to others and might be used by the primary manufacturers as another means of supplying this information to their customers. As interest on the part of manufacturers in this project grew they agreed to be responsible for printing them.

As soon as a drug has been cleared by FDA the drug manufacturer may release information on its use when distribution is proposed. Anticipating sales, he will now put the necessary information on cards providing a supply for distribution to control agencies through Dr. Quackenbush's office. The manufacturer will handle distribution to the trade.

Drug manufacturers prepare cards—Cards have either been mailed or are in preparation covering products from over a dozen companies. Eventually cards will be available for all drugs and combinations of drugs presently in use. As new drugs and combinations are approved, cards will be forthcoming and as changes are necessary they will be revised. Each card is dated.

Cards are of two types, differing only in that they are designated as A or B. All A cards are for a single drug. B cards are for combinations of drugs.

The information is printed as shown in the illustration. Instructions on the uses, warning statements, levels and other facts necessary to clearly indicate what the product is and how it shall be declared are provided.

All cards carry the statement, "has cleared the following with FDA." Every effort will be made to make certain that the statements presented are authoritative and can be used as indicated without further question.

At present, it is anticipated between 300 and 400 cards will be required to cover the entire field.

New Service Added

OSKALOOSA, IOWA—Productive Acres Manufacturing Co., Inc., has added a new service to "help bulk truck owners get more use years" out of their used bulk trucks. PAMCO said it will help the bulk truck owner stabilize a unit to his present used truck body, regardless of style, design or make.

A. DRUG: _____ (Common Name) _____ (Trade Name)

CHEMICAL NAME: _____

CARRIER OR DILUENT: _____

_____ (Company) has cleared the following with FDA:

[ ]New Drug [ ]Not New Drug [ ]Certifiable Antibiotic

WARNING: _____

ANIMAL	LEVELS (RANGE)	CLAIMS ALLOWED

Date:

DRUG CARD—This is a reproduction of the Type A card referred to in the accompanying article. The Type B card differs from the Type A card only in substitution of B where A appears in the upper left-hand corner and in use of the expression "Drug Combination" instead of "Drug." The Type B card omits information on chemical name and carrier or diluent.

ELEMENTARY...NOT A

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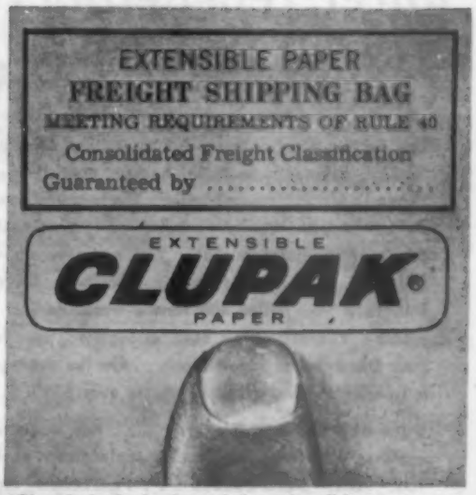

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HUBBARD TRAINING SCHOOL—Shown are 35 Hubbard dealers and employees from Minnesota, Iowa and South Dakota who attended a two-day training school at the Hubbard Research Farm at Mankato, Minn. In charge of the school was Carl Todtleben, sales training assistant. Also helping out in the sessions were: George Patrias, director of research and nutrition; Don Mohrman, purchasing agent; Don Madden, Mankato division sales manager; Vern Lundin, director of advertising and publications; Norman Dewes, consultant, and Elton Klaustermeier, sales assistant.

Dealers and employees taking part were (left to right): Front row, Jerry Kusmerek, Ivanhoe, Minn.; Dale Schmidt, Brookings, S.D.; Bennie Foster, Brooklyn, Iowa; Howard Hoffbauer, Allendorf, Iowa; Mansel Jurgenson, Round Lake, Minn.; Ferris Seaverns, New Sharon, Iowa; Elmer Ponsar, Postville, Iowa; second row, Frank Dvorak, Eldora, Iowa; Clair Schwickerath, Alta Vista, Iowa; Wendell Hartwig, Clear Lake, S.D.; Gerald Ferrinjaquet, Edgewood, Iowa; Reynold Anderson, Blue Earth, Minn.; Kenneth Nelson, Barnesville, Minn.; Bruce Newton, Grundy Center, Iowa; Roger High, Mankato, Minn., and Jerry Hussong, Okabena, Minn.; third row, Lee Hager, Lanesboro, Minn.; Norbert Toenyan, Long Prairie, Minn.; Dale Plummer, New Hartford, Iowa; Bill Ingle, Clarksville, Iowa; Bob Taylor, Bellingham, Minn.; Marvin Geske, Wabasso, Minn.; Ray Hanson, Clarks Grove, Minn.; Harold Just, Franklin, Minn., and Edwin Seebase, Sumner, Iowa; fourth row, Ed Van Eeckhout, Lake Benton, Minn.; Burdette Wedtke, Lake Benton, Minn.; Wendell Turnipseed, Swisher, Iowa; A. B. Olsen, Preston, Minn.; Rod Wolstad, Harmony, Minn.; Rowland Millard, St. Charles, Minn.; Clarence Anderson, Bigelow, Minn.; Tommy Thompson, Frost, Minn.; Roger Schmudlack, Fredericksburg, Iowa, and Don Barfknecht, Truman, Minn.

Research-Regulation Conference Proposed By Ag Research Group

WASHINGTON — The conference committee of the Agricultural Research Institute has suggested that a conference be sponsored by ARI and its affiliate, the Agricultural Board, to discuss the "impact of legal and regulatory action on research for development of chemicals required for agricultural production."

A letter from LeRoy Voris, ARS executive secretary, to ARI and Agricultural Board members said the conference committee considered April, 1961, as a general date for the proposed two-day conference in Washington at the National Academy of Sciences-National Research Council building.

Mr. Voris reported that subjects proposed for discussion during the conference were:

1. The necessity for use of chemical in the production of the nation's food supply.

2. Safeguards needed to protect the health and welfare of the nation's population.

3. Needs for research to meet technological requirements of the future.

According to Mr. Voris' letter, conference participants invited would include representatives from research and regulatory organizations. "Industry representatives, particularly, would be invited to discuss the effect of regulatory measures on their own research in development of chemicals for use in agriculture," Mr. Voris said. "The tone of the conference would be to emphasize the research needs for provision of 'food for tomorrow' in terms of quality, quantity and consumer demand. The objective would be to develop a basis for better understanding and better cooperation between regulatory and research groups."

Mr. Voris' letter asked ARI and Agricultural Board members for suggestions on special subjects, plans, procedures and speakers if they were in favor of the proposed conference.

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Purvis Tabor Named G. A. Rolfes Director

BOONE, IOWA — Appointment of Purvis F. Tabor as director of George A. Rolfes Co. was announced at the annual meeting of the firm's stockholders and directors.

Purvis F. Tabor

Mr. Tabor, Decatur, Ill., grainman and investment banker, will also serve in an advisory capacity to the firm's subsidiary organizations, Rolfes Grain Aeration Co.'s and Rolfes Electronics Corp.

He also serves as president of Tabor & Co., Sullivan Grain Co. and Macon Grain Co. He is chairman of the board of the Hight State Bank and a director of Honeggers' & Co., Lewie David Co. and Midstates Broadcasting Co.

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JOE BROOKS

BY AL P. NELSON

It's the Promotion Angle That Counts

It was 10 o'clock when Joe Brooks got home that night. Ken Burkhard, a salesman, had invited him to a dinner at the Hotel Manitou, and Joe had accepted after phoning Mary. There was a light on at the front of the house, but none was turned on upstairs. That meant that his two noisy twin boys were either in bed of their own volition, or they had been sternly ordered to bed by Mary. It happened both ways during the week at the Brooks' household.

When Joe entered the living room, he smelled coffee.

"Hi, hon," he said. "Had visitors?"

Mary, her eyes bright, smiled. "Yes, Mrs. Sweeney came over, and we got talking about a few things."

Joe raised his eyebrows as he took off his overcoat. Mrs. Sweeney was quite a gossip. The only thing she didn't know about what was happening in Hansen's Creek was how deep the frost had penetrated in January. She was a member of the local Women's Club, in which both Mary and she held offices.

"Must have been a dull visit," Joe hazarded as he came into the living room and sat on the sofa beside his wife.

Mary looked at him critically. "Oh, Joe, you know how she is. But anyway, I got a business idea for you just because she came. Now what do you think of that?"

"A business idea from Mrs. Sweeney!" Joe exclaimed.

"Now I have heard everything. What in the world could she contribute to the feed business and its promotion? She's more interested in forthcoming population trends."

"Joe!" Mary looked severely at him. "If you're going to talk like that, I won't tell you what my idea is."

"Okay, I'll be quiet, dear," Joe said. "Say, could I have a cup of coffee while we talk? I talked with Burkhard so much my throat is dry. Man, did we take the feed business inside out and put it back together again."

In the kitchen over a cup of coffee, Joe was more congenial. "Okay, dear, let's have that idea of Mrs. Sweeney's."

Mary Tells Idea

"Well, it isn't exactly her idea, Joe," said Mary. "You see, she insisted we watch that half hour show, 'The Queen and Her Court,' which is her favorite, so I had to turn on the TV. After the show was over, we talked Women's Club affairs. But during the show, I got the idea."

Joe munched on one of Mary's molasses cookies, then took a swig of coffee. "And?" he questioned.

Mary laughed. "Actually, it is such a simple idea. I wonder why we never thought of it before. Joe, how about a feed queen for our trade area?"

Joe looked up quickly. "A feed queen?" he said, startled.

"Why certainly. Think of the publicity you would get through such an idea. Nobody else has even tried that stunt that I know of."

Joe whistled. "Why, how would we handle it?"

Mary's eyes showed her eagerness. "In the first place, only women who live in families that buy feeds from us are eligible."

"Well, that figures," Joe said, sipping coffee.

"And only women who actually have anything to do with feeding hogs, chickens, dairy cows or cattle would be eligible. None of these 'kitchen addicts' would be eligible. The queen candidates have to be farm women who work with feeds."

"That makes even better sense," Joe said thoughtfully. "But how many of them happen to be beautiful?"

Mary frowned. "Why, Joe, don't be silly. All queens are not beautiful. If the one who wins is beautiful, well and good. If she isn't, I'm sure her queenly qualities will shine through."

Joe nodded. "I agree with that. But how do we go about picking this queen?"

"I've been thinking about it—sit-

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Ordinary Vitamin K Premix

STABILITY

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These astounding figures represent the result of years of research and experimentation by the Heterochemical Corporation to develop and perfect a new method of preparing vitamin K premixes. This assures maximum stability under the most adverse conditions of temperature and humidity. Success has been achieved, and there is now available to the feed industry, at no increase in price, a vitamin K premix they can use with the utmost confidence. With New Process HETROGEN K *the potency in the bag matches the potency on the tag,* whatever the storage circumstances. This high stability is proven by the test data summarized below:

STABILITY—normal storage conditions—4 gm premix at average room temperature and humidity

Avg of 3 lots	% Potency Retained 30 Days	90 Days	120 Days
New Process Hetrogen K Premix	99%	98%	99%
Ordinary Vitamin K Premix	84%	67%	52%

STABILITY—field samples—ordinary vitamin K premix recently secured from feed mills

	% Potency Retained
Average of 7 lots	23%

(Actual potency of individual lots ranged from 0 to 45%)

STABILITY—adverse storage conditions—accelerated storage conditions 113°F at 80% relative humidity

Premix Potency	% Potency Retained after 30 Days: Old Style Premix	New Process Hetrogen K
16 gm/lb	49	91
8	27	92
4	39	91

The development of New Process HETROGEN K represents the only real improvement in Vitamin K premixes which has occurred since 1954. For feed manufacturers this new HETROGEN K premix means a reduction in vitamin K fortification costs, elimination of extra overfill, no storage loss and better purchasing position. You can now buy larger quantities at a price advantage, and have complete assurance that you have a product whose potency is reliable and stable, month after month.

Prices of New Process HETROGEN K premix are competitive with ordinary Vitamin K. There is no extra charge for this improved product. A range of graduated potencies from 4 to 64 grams per pound on easy mixing calcite or edible soymeal carrier are available. Let us tell you more about this superior vitamin K premix. Write or phone for full information on New Process HETROGEN K.

*patents pending

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ting up waiting for you, Joe. A queen candidate could not enter the contest unless she was suggested by a member of her family or a neighbor. And such a person would have to write a letter to us, telling about her candidate, why she should be the feed queen and how she handles feed in the farm feed program."

Joe was getting a little excited now. "I like the idea so far, Mary, but what is the prize going to be? And how are we going to judge the entries? I don't want one of these vote deals. They don't go so hot here."

"We don't have to have a vote deal based on purchases," Mary said. "I don't like those either. We'll have a committee of judges, maybe a couple of impartial feed salesmen. They'll study each entrant's record and then decide who's to get the prize. The entrants, Joe, will be women who handle most of the poultry flock work or some who handle the milking or some who feed hogs and so forth. We'd get a variety of entries I'm sure. And we'd have to publish the pictures of the entrants—views of them working on the farm."

Joe whistled. "Yep. I can see where that will be good publicity. Seems to me every farmer who wants to get in good with the old lady—who wants to keep her satisfied handling chores—will send in her name and qualifications."

"That's up to them, Joe," Mary added.

"But the prize, Mary," Joe asked. "What'll it be? Not too expensive."

Award Easter Suit

Mary took a deep breath. "Joe, a lovely Easter suit would be a wonderful prize. Not something cheap—something good. It would be wonderful advertising."

Joe winced and closed his eyes. "Oh, Mary," he moaned.

"But you could arrange with Reddell's Women's Wear for a big discount, couldn't you? Especially if you mention that the winner will get a suit purchased there. Play Reddell's name up in big type several times."

"Mary, you are pretty shrewd," Joe said.

"Well, I know what you have to do to get cooperation in this town. And, dear, let's have three consolation prizes—Easter hats. At a discount, too."

"Wow! Mary, don't break me," Joe cautioned.

"I'm not," Mary said. "Look, Joe, women are important on the farm, and a farm woman's recommendation can get feed orders for you. You spend money treating farmers to lunches when they come to town—you give them cigars and other things and even take some to basketball games. Now do something for the women."

Joe sighed. "Well, maybe you're right, honey. And it would be a promotion that would attract attention and bring in traffic. So let's work it out." Then Joe added with a sweet smile, "Isn't it nice, dear, that you got a stunning Easter suit last year? It still looks lovely on you."

Sparks flashed from Mary's eyes as she got the gist of Joe's statement. "Well, if I have to wear the old thing another year, I will need a nice new hat. I've got one spotted at Reddell's for $20. With the discount—maybe—"

Grandma could get away with it!

Grandma's recipes were a pinch of this and a dibby-dab of that.

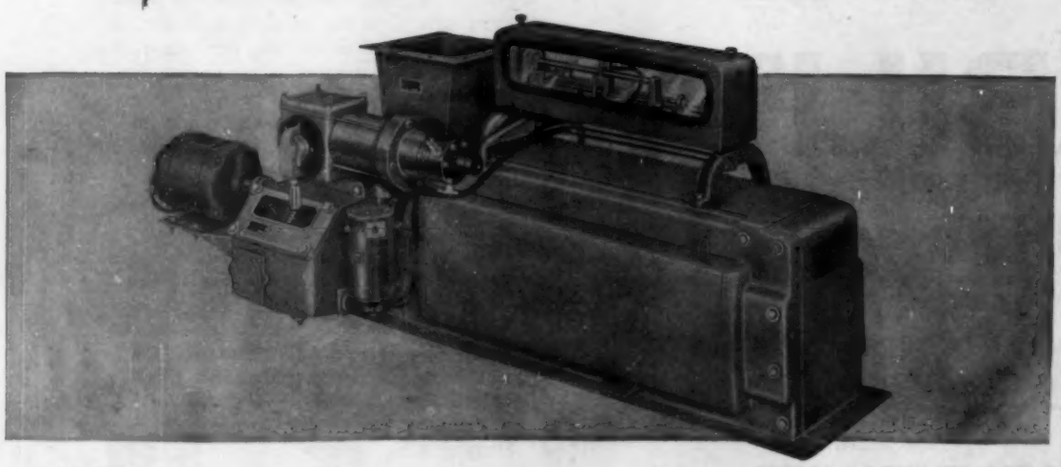
That was fine for Grandma. But it won't work in process blending. Here, you need precise control, minute-to-minute accuracy, exact formulations.

And you get just this and more with W&T's Merchen Scale Feeders and Meters. They control or measure feed rates by weight. There's no guess work. You get exactly what you set the equipment for . . . yields are known; quality is controlled.

You can feed any free-flowing solid in batch or continuous blending operations . . . as little as 3 lbs. per minute; as much as 3000.

And you do it with W&T's rugged, compact Merchen equipment—built for performance . . . built to give you profit-making control . . . built to take the "Grandma" out of your process blending.

Interested? Write Dept. M-48.36



WALLACE & TIERNAN INCORPORATED

25 MAIN STREET. BELLEVILLE 9. NEW JERSEY

Canadian Support Policy Is Reaffirmed

OTTAWA—Favoring deficiency payments for some commodities, but expressing doubt about their use in connection with eggs and hogs, the Canadian Federation of Agriculture reaffirmed its support policy in the annual presentation to the Prime Minister and Cabinet.

The federation suggested that "more careful consultation with producers through CFA should take place before new support programs are undertaken, as for example when the egg and hog deficiency payment programs were decided upon.

"The federation definitely favors return to the offer-to-purchase method of support for these products, because it believes that the deficiency payment method in these products creates inequities, insecurity to the individual producer, instability of markets and prices to producer and consumer, and when used with individual limitation of benefits, introduces the unsound principle of planning the pattern of agricultural production through support programs."

It was recommended by CFA that as long as deficiency payments continue to be used, the following measures should be taken: (1) Place emergency offer-to-purchase supports under the market in addition to the deficiency payment; (2) support the price of fowl in the market; (3) calculate egg deficiency payments regionally; (4) calculate hog deficiency payments on a three-month basis, and (5) extend the egg support to small and medium grade A eggs and correspondingly increase the individual benefit limits.

American Planter Names Sales Chief

BURR OAK, MICH.—Richard E. Erickson has been named to the position of general sales manager with the American Planter Co. of Burr Oak.

R. E. Erickson

Announcement of the appointment of Mr. Erickson was made by T. John Reed, president of the company.

Mr. Reed said that Mr. Erickson will be in charge of the marketing of the company's entire line of automated feeding systems.

Mr. Erickson formerly was with Dun & Bradstreet, Inc.

Feed Sales Reported

COLUMBUS, OHIO—Farm Bureau Cooperative Assn. (Ohio) handled $12,880,000 worth of feed during 1959, according to a report by Kenneth N. Probasco, executive vice president and general manager. This volume amounted to 28% of the association's purchasing and supply dollar total of $46 million, he said.

Total sales volume of the organization was $72,283,000 last year, of which 37% was in marketing and 63% in purchasing and supply.

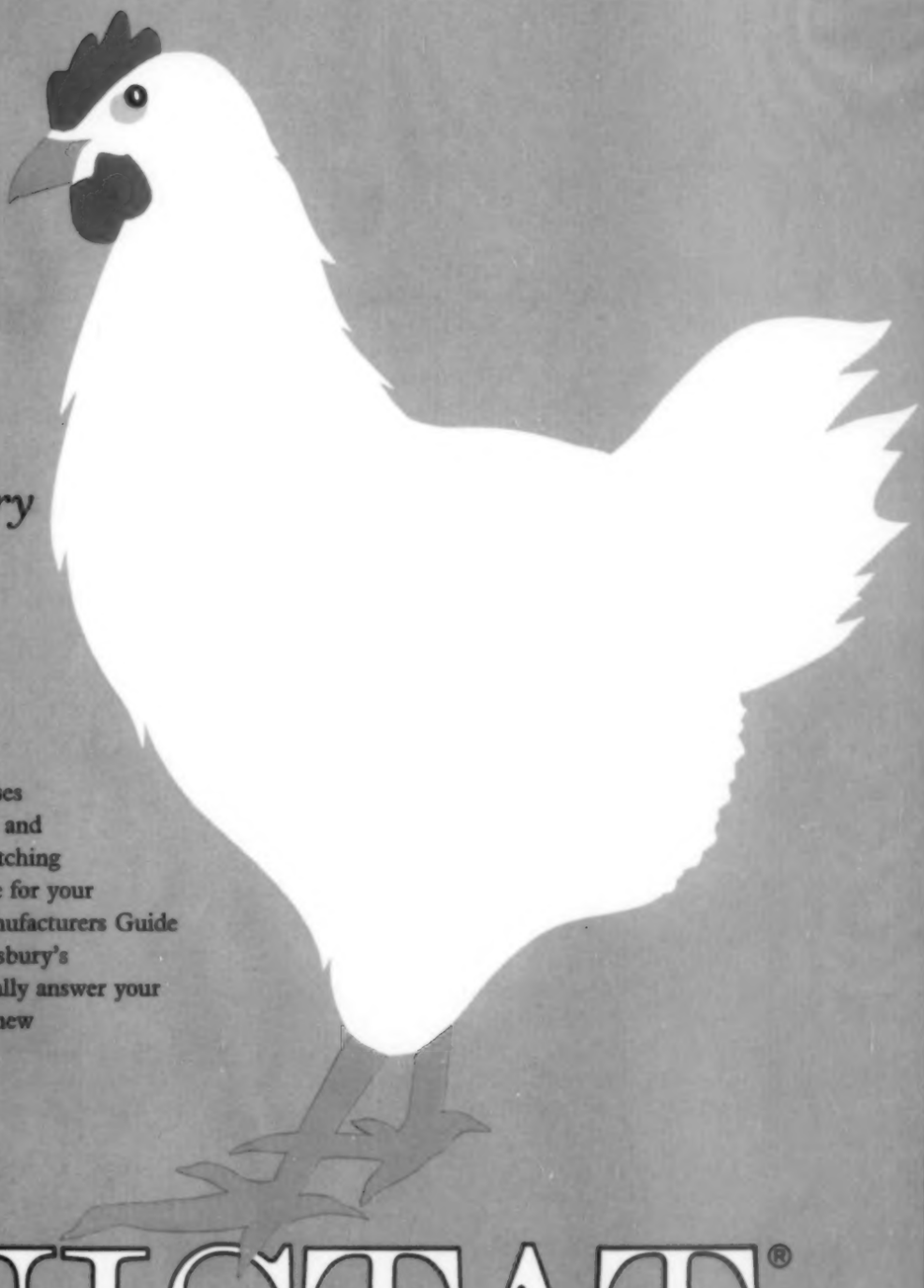
COLUMBIA SOFT PHOSPHATE

IMMEDIATE DELIVERY LOW COST

WRITE FOR INFORMATION

Columbia Phosphate Co.

COLUMBIA PHOSPHATE CO. PHOSPHATE PRODUCTS



Get the full story on Unistat

Today, two out of every three broilers are raised on Dr. Salsbury's Unistat. In two short years, growers have found that Unistat prevents coccidiosis best and that it profitably increases feed efficiency. That's why more and more feed manufacturers are switching to Unistat. Write, wire, or phone for your copy of Dr. Salsbury's Feed Manufacturers Guide on Unistat. Or, ask for a Dr. Salsbury's representative to call and personally answer your questions about how to use this new coccidiostat in your feeds.

UNISTAT®

the No. 1 Coccidiostat for broilers and replacement chicks

Give your feeds

MORE DISEASE-FIGHTING BENEFITS

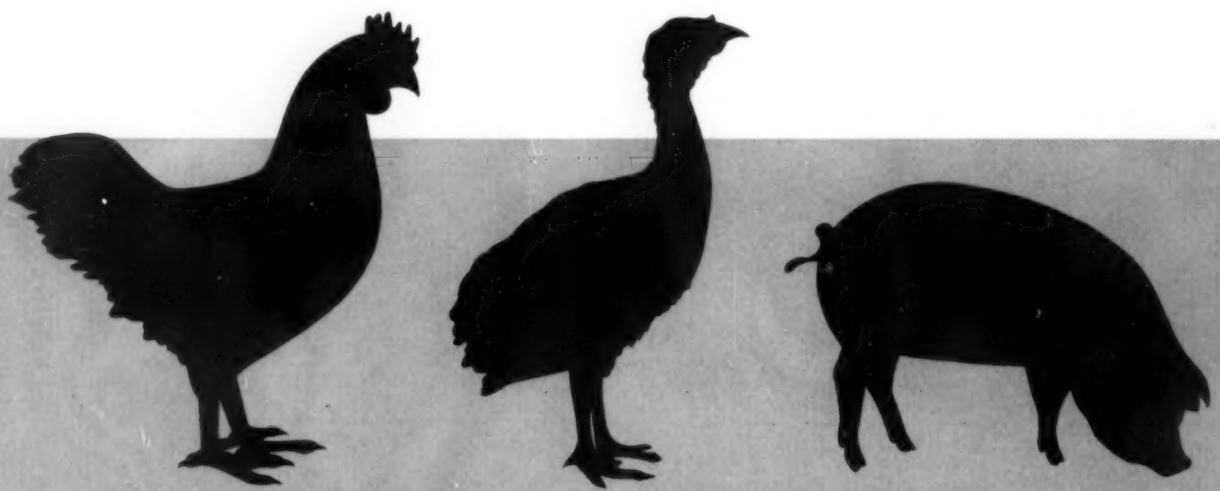
with Dr. Salsbury's *STREPCILLIN F-25*

AN ANTIBIOTIC FEED SUPPLEMENT

Dr. Salsbury's Strepcillin F-25 is a most effective combination of antibiotics providing benefits that equal, or surpass, those of a single antibiotic. There are **6.25 grams procaine penicillin** and **18.75 grams streptomycin** in each pound of Strepcillin F-25. Penicillin is well known for its effect in stimulating growth. It is readily absorbed by the blood, so it kills harmful gram-positive germs throughout the system.

Recent tests have shown that streptomycin added to penicillin produces even greater growth stimulation. Streptomycin is highly efficient in killing harmful gram-negative germs found in the intestines. Most of the streptomycin stays in the intestines, where it continues to kill bacteria long after most of the so-called broad-spectrum antibiotics have ceased to be effective. This bactericidal action is the basic reason why streptomycin is able to overcome so many diseases that originate in the gastro-intestinal tract.

In short, Strepcillin F-25 contains two antibiotics that work together as a disease-fighting team to reduce infection and build profits—for growers, the feed manufacturers, and dealers.



CHICKENS

Varying amounts of Strepcillin F-25 are fed to **stimulate growth, improve feed efficiency**, help **boost egg production**, and **fight disease**. Feed Strepcillin F-25 for the first 10 days, then 3 to 5 days during, or immediately after, such stresses as vaccination, debeaking, housing pullets, chilling, or overheating. Or, feed it for the first 10 days, then for 3 days out of every week until marketing time. Or, use it continuously in case of disease outbreaks. (Other feeding programs based on flock needs may be adopted.)

TURKEYS

Feed continuously (in varying amounts, depending on flock needs) from hatching until birds are 16 to 20 weeks old to **stimulate growth, improve feed efficiency, fight disease.** Helps prevent early death loss among poults. Is effective as treatment for bluecomb and infectious sinusitis, protects against loss following periods of stress caused by vaccination, desnooding, chilling, moving, and overheating.

SWINE

To **stimulate growth, improve feed efficiency,** and **promote more uniform gains,** mix Strepcillin F-25 at rate of 1 lb. per ton of feed. To prevent "necro," use feeds containing twice this amount of Strepcillin F-25 (2 lb. per ton) continuously until pigs reach 50 to 75 lb. To control "necro," use Strepcillin F-25 at the rate of 4 lb. per ton of feed and give for 4 or 5 days (or until symptoms disappear).

FIND OUT NOW . . . more about Dr. Salsbury's Strepcillin F-25. Write, wire, or phone for Feed Manufacturers Guide No. 18. Or, ask that a Dr. Salsbury representative call and discuss feed-formulating problems with you in person.

GOOD MANAGEMENT is the key to HIGHEST PROFITS

There is no substitute for good management in the profitable production of livestock and poultry. Today's birds and animals have inbred qualities for high yield—per hen, per hundredweight of feed, or any way you want to look at it. But high production is an unnatural condition, one that is extremely difficult to achieve or maintain. Those who lean on medication alone soon learn that they cannot hope to realize sustained top profits. It takes the consistent use of both good management *and* medication for highest returns, year after year. Many organizations have joined hands in telling this story to growers, hoping they will not "cut corners" and thereby handicap today's superior feeds, medication, and breeding stock. The following seven rules have been suggested as a guide to good management:

1. Select high-quality, disease-free livestock and birds. The best of feeds is no substitute for good breeding. And the end result (eggs or meat) is seldom any better than the genetic characteristics of the birds or animals growers start with.
2. Care for young animals or birds properly. This includes vaccination and all other such preventive measures. The grower who markets 99 broilers or turkeys out of a hundred takes every precaution during those critical first few weeks.
3. Practice good housekeeping throughout the year or life cycle of the animals or birds involved. This includes adequate housing, watering, heating, ventilation. It also means a strict sanitation program, clean pastures, and litter.
4. Give continuous attention to birds' and animals' nutrition so as to provide optimum disease prevention and growth stimulation. The most successful growers are those who reinforce good management with a sound feed additive medication program.
5. Observe flocks and herds daily, so as to detect health problems before they reach the epidemic stage. Nowhere else is timeliness any more important than in the field of health. Growers should isolate sick birds or animals immediately.
6. When trouble breaks out, get an accurate diagnosis at once. If prompt diagnostic service is not available, contact the Dr. Salsbury dealer and ask him for help in identifying the malady.
7. Treat sick birds or animals promptly. Use a reliable recommended treatment in accordance with the diagnosis of the condition.

We, here at Dr. Salsbury's Laboratories, gladly subscribe to the above management rules. They will, if followed faithfully, repay the grower many times over through lower disease loss and higher profits. In support of this belief, the ads we write for grower publications have been carrying the following message (or words to this effect):

MEDICATION IS ONLY ONE PART OF GOOD FLOCK MANAGEMENT. FOR BEST RESULTS, PRACTICE SOUND FEEDING, HOUSING, SANITATION, AND PEST CONTROL.

We can help you build better feeds

Disease is the greatest single threat to profitable poultry and livestock production today. And disease problems are steadily becoming more complex, thus making new demands on your feeds. All this calls for more service, more co-operation between the laboratory and the field—for it is in the laboratory that answers to many field problems must first be found.

Over the years, Dr. Salsbury's Laboratories has developed several outstanding feed-additive health products—also the field manpower to help assure their proper application. Remember to contact your Dr. Salsbury's Territory Manager. He is as close as your telephone and can be most helpful to you in many ways. Make him your "Partner in Service." It is his business to help you—and to help make your own business more profitable.

Please write, wire, or phone for further information about any particular product mentioned in this brochure. Or, if you are interested in some other product or service, please ask about that also. We will do our best to take care of your request. Let us help you . . . build better feeds.

Dr. SALSBURY'S LABORATORIES
Charles City Iowa

Management and medication make today's superior feeds even better

How To Improve Sewing Machine Operations

By Arthur Nichols
West Virginia Pulp & Paper Co.

Not too long ago I visited a new plant equipped with the newest machines for sewing multiwall bags. As the foreman proudly showed me the operation, he remarked, "This is one of the most efficient operations of its kind in the country."

My answer came as a surprise to him. I said, "Yes, Joe, you have a very modern plant, 'but' I can see a number of things wrong with the adjustment of your sewing and conveying equipment, and the way they are being operated. If these things are corrected, your efficiency can be increased by at least 50%."

This is not an isolated case. Our experience over the years has shown that there is hardly a plant in the nation where the sewing machine operation cannot be greatly improved. As a matter of fact, by following a few simple rules, bag breakage and product losses totalling millions of dollars annually can be materially reduced.

Let us get down to a few specifics: It has been proved in the field that properly sewn bags will outperform bags improperly sewn by at least five to one. We also have discovered that a great majority of "bags are improperly sewn," causing a high percentage of bag breakage at the customer's operation.

Let us list some of the things that can happen when the sewing machine operation is not efficient.

1. Improper tension of thread.
   Result: Tight stitches, causing thread to cut into paper, thereby weakening the bag and causing it to rupture along the sewing line.
2. Improper number of stitches.
   Result: Too few stitches cause sifting or leakage of product. Too many stitches cause weakening of bags. The recommended stitch per inch is 3.0 to 3.5.
3. Slippage of "feed dog." This is caused by too little or too much pressure on the pressure foot spring.
   Result: Too little pressure causes slippage of feed dog. Too much pressure forms a bind which interferes with proper feeding of bag. (A dull feed dog may react in a similar fashion.)
4. Improper timing between sewing head and conveyor belt.
   Result: Sewing line becomes uneven. This causes an unequal weight when bag is filled, increasing bag breakage.
5. Binding of tape (when tape is used).
   Result: Tape will bind in folding mechanism, causing digging of "feed dog" on tape, even though feed dog is sharp.
6. Dirty machines.

a) **Result:** Where lint deposits build up in grooves of feed dog, there is an undue strain between the feed dog and throat plate, causing unnecessary wear.

b) **Result:** Where there is an accumulation of lint and product around the moving parts, oil lines may plug, causing "freezing" and breakdown of equipment.

Since West Virginia organized its multiwall bag division about a year and a half ago, we have analyzed just about every kind of plant in the country which fills and closes bags.

Much to the happy discovery of most managements, solutions to these sewing machine problems, which are not self evident, are surprisingly simple, and the reduction in bag breakage and product loss surprisingly large.

It takes long experience, however, to be able to detect trouble spots, because many are not easily detected on the surface. Also, once a trouble area is spotted, the trick is to know just exactly what to do to overcome it.

EDITOR'S NOTE: Mr. Nichols is manager of the sewing machine clinic service of West Virginia Pulp & Paper Co.

Northeast Egg Co-op Unification Is Urged At Group's Workshop

WASHINGTON — Northeastern poultry and egg marketing cooperatives should centralize their operations in six key locations in the 14-state area, according to a survey completed by the federal Farmer's Cooperative Service.

The recommendation, and a report on the survey, was one of the major presentations at the two-day Winter Business Management Workshop held here at the Hotel Willard under the wing of the Division of Cooperatives of the Northeastern Poultry Producers Council.

Addressing a meeting of some 70 managers and directors representing 27 marketing cooperatives in the area, Henry Braford, FCA official, said that "centralizing through federation or other means is imperative for future service and growth."

One of the six areas—New England—has already achieved this end, he reported, through the egg marketing division of the Eastern States Farmers Exchange, West Springfield, Mass.

Egg prices, both wholesale and retail, came in for close examination and discussion during the two-day session. A panel discussion on the shortcomings of egg price reporting emphasized the changed nature of today's egg market. Stress was placed on the difficulty of adequate price reporting when such a large proportion of the product is priced on a base quotation with little genuine trading information to back it up.

Both buyers and sellers have abandoned bartering for price, panel members declared. Today they set their sights for the spread above or below the "base quotation." This may be the easy way to sell, but it puts unwarranted pressure on the sales reporter, said the panel.

An announcement was made at the conference on the organizational steps for a new exporting corporation under NEPPCO's sponsorship and using the facilities of the Northeastern Poultry Cooperative Assn. This project has been one of the major planks in the council's "Project 65"—a long range program for improving the lot of poultry producers.

Marketing orders for poultry and eggs also came in for sharp scrutiny, with Thomas C. Morrison, University of Connecticut, on the rostrum. "The short term benefits that might possibly accrue if the operational problems could be solved, might easily be overcome by the long run aspects of lowered consumption and increased competition from other foods," he said.

ACE BRAND ROLLED OATS
(STEAMED ROLLED)
Feed manufacturers have proven that Ace Brand's superior quality at a competitive price is the answer to today's demand for lower feed cost.
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FRUEN MILLING CO.
MINNEAPOLIS, MINN.

New DAY "RJ" Dust Filter
CONTROLS DUST SAVES DOLLARS

only 3 moving parts
Built under patents of The DAY Company and H. J. Hersey, Jr.
Because of its new, simplified design the DAY "RJ" dust filter will save you many dollars on initial investment, installation, operation and maintenance. Some of the important new construction features of this dust filter are: a new, quick-opening reverse-air, counter-flow valve for maintaining filter media porosity; a new, reverse-air pressure blower arrangement, and new, air tight, yet quickly opened inspection doors.
This patented DAY dust filter has only 3 moving parts but controls dust effectively, efficiently (99.99+%) and economically. It represents the latest refinement in a long-tested, plant-proven dust filter. Using felted filter sleeves to capture dust, the "RJ" is now available in 5 sizes for handling from 300 to 6400 CFM of air (for larger capacities, multiple groupings are furnished).
For more detailed information write toDAY for free Bulletin G-30. It's filled with facts, specifications and dimensions.

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Dust Control • Pneumatic Conveying • Bulk Storage
EQUIPMENT SYSTEMS INSTALLATION

USDA Tells Plan For Surplus Corn

WASHINGTON—The U.S. Department of Agriculture has issued an announcement explaining the program for the utilization of surplus corn for processing into industrial alcohol and related byproducts, not including beverage alcohol.

The purpose of the announcement, USDA says, is "to acquaint interested parties with further details of this experimental program." The USDA expects that offers for the purchase of the surplus corn will be invited in the near future.

It is planned that the department, through the Commodity Credit Corp., will make available for sale, through competitive offers, approximately 30 million bushels of No. 3 grade or better corn for conversion by fermentation into acetone-butanol-ethanol and byproducts and for conversion by fermentation into ethanol and byproducts. The department is interested in both processes, but the quantity of corn allocated to each of these processes, of course, will be dependent upon offers received.

The department, in making this corn available, USDA says, is acting:

"(1) to dispose of certain surplus stocks owned by CCC for processing into products which constitute other than primary uses for corn and which will not have an undue disruptive effect on any CCC price support program,

"(2) to obtain actual conversion cost data on the process necessary to produce the product, data on the return obtainable for the product, and from these to determine the return obtainable under commercial conditions for the corn, and

"(3) to explore the economic impact of the utilization of corn in the product."

Prospective participants in the program may communicate with the director, grain division, Commodity Stabilization Service, USDA, Room 3610, South Building, Washington 25, to assure receipt of an invitation for offers when issued and for any information they may desire.

To Process Poultry Feathers Into Meal

SAN FRANCISCO — Processing poultry feathers into a meal for use as an ingredient for poultry and livestock feed is a new project of the Puget Sound By-Products Co., Everett, Wash.

Orin Tapert, president of the company, reported recently in San Francisco that his firm is constructing a $65,000 addition to the plant to receive feathers from slaughterers of poultry, turkeys and related birds to turn them into a meal for sale to manufacturers of feed products.

The new plant, just completed and going into operation, has an estimated total capacity of around 1,500 lb. an hour, Mr. Tapert said.

ON STOCK EXCHANGE — When Central Soya Co., Inc., Fort Wayne, Ind., soybean processor and concentrate feed manufacturer, was listed on the New York Stock Exchange last month, these men gathered in front of the "big board" under the company's ticker symbol, CSY. From left are: Keith Funsten, president, New York Stock Exchange; Harold W. McMillen, chairman of the board, Central Soya, and Albert B. Tompane, Benton & Co., specialist in the stock.

Oregon Scientists Test Low Cost Mink Rations

CORVALLIS, ORE.—Oregon mink growers may soon be using more low-value fish and dried food products to hold down feeding costs in their $5 million industry, according to research reported at the sixth annual Fur Farm Field Day at Oregon State College.

Nearly 100 mink ranchers heard OSC research scientists report that hake, a trash fish caught in large quantities by Oregon fisheries, performed well in feeding trials when properly processed. Raw hake fed to mink in the past had caused a "cotton pelt," or whitening of the pelt hairs in mink.

The hake is cooked and pickled in processing, it was explained, which apparently keeps it from causing the "cotton pelt" condition. Work is now under way to see if processing costs can be held low enough to make feeding hake economically feasible.

Successful use of dried feeds in mink rations was also reported. In one experiment, mink fed dried feeds produced good quality pelts but were smaller than normal. The smaller size may have been due to difficulty in feeding the dry materials, the scientists said. Better feeding methods now have been worked out, and further trials are scheduled.

At present, mink ranchers must handle and store large quantities of fresh meat products. The dried feeds would save considerable work and expense.

The OSC scientists also described a new ration containing no raw liver. Raw liver has always been considered necessary in mink diets. However, the researchers obtained normal size and pelt quality when a synthetic liver supplement was used in one experimental ration.

USING BASIC HOPPER DESIGNS

Lemanco

CAN BUILD EXTRA CAPACITY FROM 20 TO 94 TONS

At 40 Pounds Per Cubic Foot

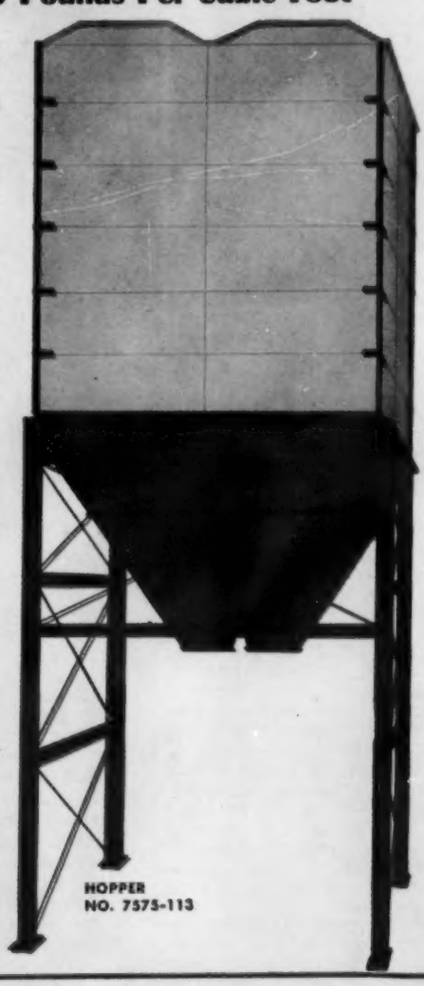
for grains • ingredients concentrates • finished feeds

The Lemanco system of prefabricating steel BULK STORAGE BINS for inside or outside use is sufficiently flexible that custom planned storage can be offered at mass production prices and delivery. Modular design permits shipment by truck to all points.

The solidly welded base and the Lemanco patented corner holding the side sheets in tension introduces a new concept in the construction of feed storage facilities. Shown are two examples of bin clusters with capacities of 20 tons and 94 tons. These bin clusters are formed by using four hoppers with common wall partition giving four storage compartments.

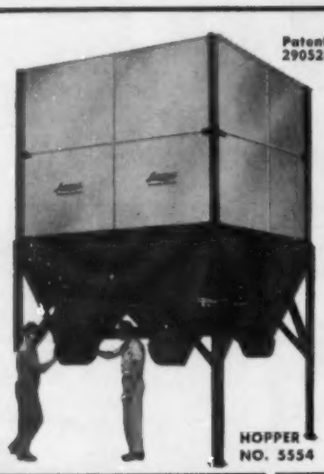
Lemanco bins are available for inside or outside storage with models available for side draw or corner draw. This construction permits joining in a straight line as well as shown.

When inquiring about these bins be sure to specify if pneumatic delivery will be used.



HOPPER NO. 7575-113

Patent 2905283



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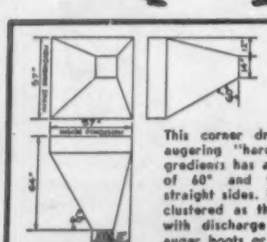
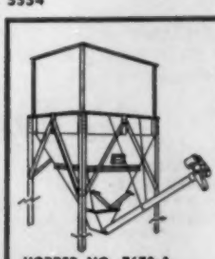


This corner draw hopper for augering "hard-to-handle" ingredients has a minimum pitch of 60° and two practically straight sides. Hoppers can be clustered as the 5554, above, with discharge into individual auger boots or into a common auger boot.

HOPPER NO. 5564



This general purpose side-draw bin for use with auger or weigh buggy has a capacity of 5¾ tons and a maximum capacity of 8¼ tons with another tier of sides. The bin can be used inside as well as outside. Inverted rotary gates, as shown, permit partitioning. Other type gates also available. The minimum 60° pitch of this hopper makes it useful for many applications. It can also be clustered.

HOPPER NO. 7670-A

HOPPER NO. 7670-G

Telephone or write today for prices and further information.

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MARCO Feeding Grade TALLOWS

Quality tallow from one of the largest animal fat processing plants in the Southwest. Guaranteed specifications in all grades of fats.

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MARCO CHEMICAL COMPANY

P. O. BOX [illegible] FORT WORTH 1, TEXAS

HYGROMIX IS THE ONLY WORM CONTROL METHOD THAT STOPS SWINE WORM REPRODUCTION. BY CONTINUOUSLY KILLING WORMS *BEFORE* THEY CAN LAY NEW EGGS, HYGROMIX STRANGLES THE SOURCE OF THE WORM PROBLEM.

Proof that Hygromix stops worm-egg production...*and why this is important*

One of the biggest advantages to the use of Hygromix feeds is the fact that Hygromix stops worm-egg production of the large roundworm, nodular worm, and whipworm. Since the female roundworm, alone, is capable of laying up to 1,400,000 eggs daily, reducing the source of reinfestation is the best way to control swine worm damage.

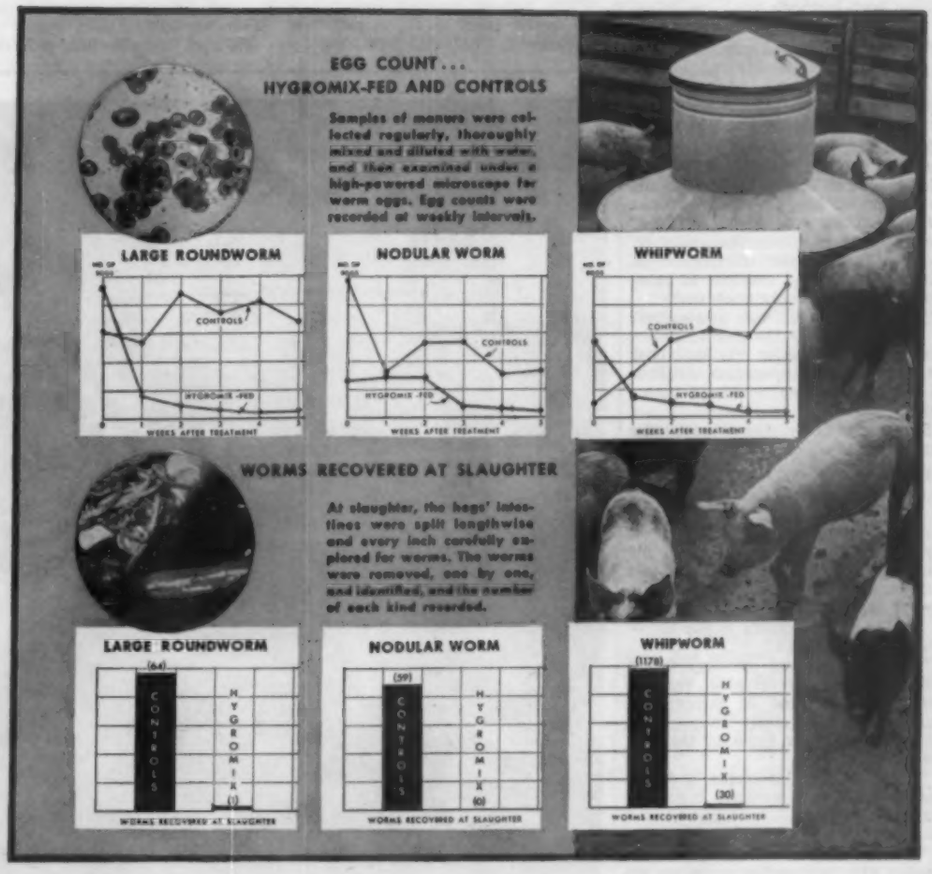
Hygromix is the *only* worm control method that stops this problem at the source . . . before the hidden damage is done. Purge-type wormers act too late to control this continuous cycle of reproduction. Hygromix breaks the life cycles of the three swine worms at two points. It kills adult worms already present in the hog, and stops their egg production . . . and it kills new baby worms as they enter the intestinal tract . . . before they grow to egg-laying maturity. And, since Hygromix is in the feed, it protects the hog day after day.

These charts prove Hygromix stops worm reproduction

On the right is a summary of the results of experiments which were made to test Hygromix's ability to stop swine worm reproduction. Pigs from worm-infested herds were divided into equal groups. One group (called the "control" group) was fed a high-quality swine ration without Hygromix. The other group was fed the same ration *with* Hygromix.

With high-powered microscopes, regular worm-egg counts were made throughout the tests. Notice that egg production was cut practically to nothing within three weeks. As a final check, all pigs were slaughtered at the end of the tests, and any worms present were carefully hand-counted.

These experiments firmly proved that Hygromix feeds do two things no other worm control method can do: *Hygromix kills more kinds of worms . . . large roundworms, nodular worms, and whipworms. Hygromix stops swine worm reproduction.*



HERE'S WHAT COLLEGE RESEARCHERS HAVE TO SAY ABOUT HYGROMIX'S ABILITY TO STOP SWINE WORM REPRODUCTION:

Many state colleges have conducted tests to determine the effect of Hygromix-fortified feeds. Here are a few excerpts taken from their summary of findings:

Hygromycin effectively controlled roundworms, nodular worms, and whipworms, as shown by ova counts taken and by worm counts obtained at slaughter.

Purdue Swine Day—Mimeo A.S. 242, August, 1958

Hygromycin B is highly effective and more nearly meets the requirements of an ideal wormer than any of the former compounds.

"Worm Eggs Cost You Money"—University of Nebraska, E.C. 1902

Feeding of hygromycin B to sows during gestation lowered the reservoir of *Ascaris* eggs from 555 per gram of feces in the untreated sows to 2 eggs per gram in those treated.

Nebraska Rooters Day Swine Progress Report 370—Summer, 1958

The reduction in the number of ascaris (roundworm) and nodular worm ova in the treated groups would indicate that this feed additive (Hygromix) is very effective in the elimination of these internal parasites of swine.

Ohio State Swine Day, 1957—Animal Science Mimeo 106

Hygromycin hits harder than other drugs. The new drug gets whipworms, which no other drug has been able to touch. It acts partly by blocking reproduction of the parasites . . . an ideal way to stop the worms before they do the damage.

Press Release—University of Wisconsin, December 16, 1957

Hygromycin controlled roundworms effectively, as there were no roundworm ova present in the feces of any pigs receiving either hygromycin or the combination of hygromycin and chlortetracycline.

South Dakota Swine Field Day—September 11, 1958

Hygromycin was effective in reducing the roundworm egg count.

"The value of various antibiotics for growing fattening swine"—Missouri Swine Day, September 5, 1958

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Panel Discusses Marketing Methods At Ohio Grain, Feed Group Convention

By DON E. ROGERS
Feedstuffs Staff

TOLEDO, OHIO — Marketing methods as they affect independent and cooperative grain elevators, feed dealers and fertilizer distributors were described by a four-man panel at the Ohio Grain & Feed Dealers Assn. convention here.

Dr. J. W. Sharp, associate professor in agricultural marketing, Ohio State University, moderated the panel which included Elmer Fischer, Minster; Wayne Geeting, Savona; Reed Rexford, Newark, and Fred Duncan, Metamora.

Mr. Fischer pointed up some of the problems facing the feed dealer today. He noted that "service is one of the best methods we have today to compete against direct selling."

Mr. Duncan pointed out the necessity for efficiency and rapid service in operating a grain elevator. He noted some of the ways in which his elevator is combating small margins.

Mr. Rexford stated that he thought the farm supply field offered "terrific sales potential in a changing agricultural climate," but stressed the need for caution. He pointed out some of the different problems that may be involved, noting the differences in running a mill and elevator in relation to a farm supply operation.

"Greater service" was emphasized by Mr. Geeting as the key to maintaining fertilizer sales. He explained his business' basic operation and how he believed volume could be maintained.

Summaries of the discussion by the four men follow:

FEED SERVICE — Some of the problems facing the feed dealer today were discussed by Mr. Fischer.

In backgrounding his discussion, Mr. Fischer pointed out that in his community, "we have what you call the family size farm. The average size is about 140 acres. The feeding of livestock and poultry is our farmers' main livelihood.

"Feed prices and quality, direct selling, accounts receivable, services and the right kind of information that feeders need today" were listed by Mr. Fischer as some of the major items.

"To meet these problems, a dealer has to have an aggressive organization to compete against competition," he said.

"We give more attention to the quality and feed performance on the farm than buying strictly on price alone."

He pointed out that his firm makes about 10% of its own supplement feeds. It buys the other from a "reputable feed manufacturer who is able to give us the kind of feed we need, for a fair price, along with good reliable service, and can give us any nutritional help that we may need to do a good job.

"Service is one of the best methods we have today to compete against direct selling," he added. "We are employing a full time field man, who is a college graduate in agriculture and has a year's training with a company that manufactures animal health products."

His firm built bulk feed storage bins during the past year. The unit is a square-type construction, 16 ft. square, divided into 16 4-ft. square bins. These bins are 23 ft. high and have a capacity of 9 tons of bulk feed in each bin.

"This bulk bin setup saves us about eight man hours of labor a week, which it normally took to unload and handle the bagged feed," he says. "Now we blow the feed into the bins by air and get it out in a weigh buggy. And in addition to the saving in labor, feed bought in bulk is approximately $5 a ton cheaper."

Another service listed by Mr. Fischer was grain bank storage with grain drying facilities.

"The biggest problem facing any feed dealer today is credit and how to handle it," he said. "We have no solution to this problem. Neither have I heard of anybody who has."

With the help of the production credit and local banks, his firm has been able to finance some farmers, he says. Others, the firm carries on the books for 60 or 90 days. "Those who need more credit for a longer period of time, we are accepting their notes with interest," he said. "Some of our customers are strictly on a cash basis."

GRAIN OPERATORS—"The country elevator in Ohio today must be efficient, provide rapid service and pay fair prices," Mr. Duncan said.

"Operators must be alert to market changes and conditions and above all be a true friend of the farmer," he added.

Mr. Duncan listed some of the essentials for elevators today.

"We make our farmer-customers feel at home," he said.

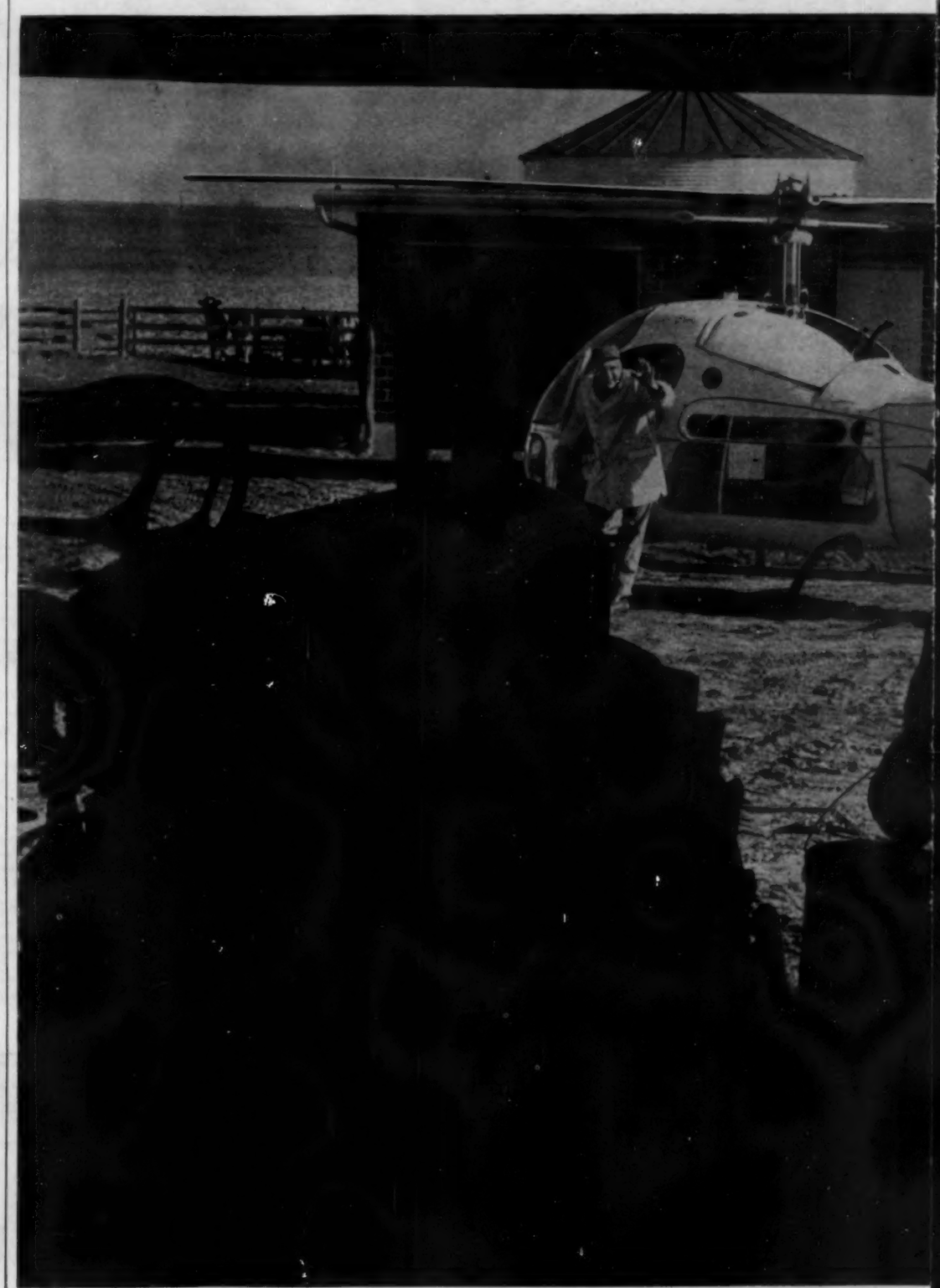
Mr. Duncan also listed rapid unloading service as a must. "A minimum of two unloading pits, each capable of holding 800-1,000 bu. is required," he said.

"Naturally, as volume increases, the elevator handling margin shrinks to a point, where you wonder if just buying and selling will produce enough revenue to afford staying in business. Many elevators find themselves in this position today, yet are still operating profitably."

Mr. Duncan pointed out that his firm's grain handling is so arranged that two men can take care of 15,000-20,000 bu. of grain per day. The addition of one man or a total of three men can increase handling capacity to approximately 30,000 bu. per day, he added.

"We combat small margins to some extent by always trying to follow the market price," he said. "We further try to combat small margins by blending and mixing either off-grade or high moisture grain."

MARKETING FARM SUPPLIES —Some of the areas to be considered before expanding to a farm supply



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operation were discussed by Mr. Rexford.

Mr. Rexford pointed out that the Licking County Farm Bureau Cooperative Assn., Inc., operates a "town and country store," aiming some of the effort at the city people in an attempt to take advantage of the growing urbanization in the store's area.

Commodities handled in the operation include: fence, spray material, building material, paint, tires, white goods, lawn and garden supplies, hog and poultry equipment, twine and rope and hardware items.

Mr. Rexford discussed four general areas in his talk: facilities, personnel, sales and service.

"In general, our experience seems to indicate that a minimum display area for such things as white goods and hardware items in combination with a cheap structure for displaying items like fence and building material, may serve to provide a very low cost farm supply facility," he said.

In an effort to deal with the difference in personnel problems involved in operating a town and country store as compared with a mill and elevator, his company has found it necessary to organize a statewide training school for store managers, said Mr. Rexford.

"The sales program in the store operation is again quite different in that you rely on an 'in-plant' sales program, plus advertising, to create traffic," he said. "In our particular store, we are operating with about five major sales per year. Advertising on radio, TV and in the newspaper constitutes our major promotion program for the store operation."

Mr. Rexford pointed out that his store is organized in what might be called a "semi-self service" basis.

"Hardware items are located in an area of the store which is entirely self-serve; white goods, paint and items requiring a sales story are located in an area served by a salesman," he said.

"We have found that it is necessary to organize our store in this manner to minimize sales cost in our numerous small items involved in our hardware section.

"Farm supplies are a field in which most mill and elevator operators have had little experience, and, although I do think you need to proceed with caution, I think this particular field offers many of us terrific sales potential in a changing agricultural climate."

FERTILIZER—"We felt that the only answer to maintaining our fertilizer sales was to give greater service to our customers," said Mr. Geeting.

Mr. Geeting noted that in recent years, the retail fertilizer business has undergone considerable change. He pointed out that price cutting, direct farm sales and long-range credit terms have made fertilizer a highly competitive item with a very narrow margin of profit for the established dealer.

"As a means of providing greater service," Mr. Geeting said, "we constructed a warehouse adjoining our mill and are now entering our third year of operation."

He described his warehouse as being built on two levels—a 40 by 60 ft. bag storage area built at truck level and a ground level area for bulk storage. This consists of six bins, each 25 by 10 ft., holding approximately 35 tons per bin. "These six bins enable us to carry all ratios manufactured by our supplier," he said. "We have found that the average bulk customer desires only high analysis fertilizer.

"When a customer desires an analysis which we do not stock in bulk, we explain how he can obtain the same results with less effort by staying within the given ratio and using proportionate amounts. Apparently our customers have been satisfied with this arrangement."

Bulk fertilizer is handled with a Payloader, he explained, hauling approximately 900 lb. per scoop. A utility farm tractor could be used in the same manner, he added.

"During our first spring season of operation, we moved about 30% bulk," he noted. "Last year, we moved about 40% bulk and anticipate an increase to nearer 50% this year."

Mr. Geeting points out that his firm has adhered to one established price to all customers without exception and has nevertheless shown a "very satisfactory increase in tonnage from year to year. It is our belief," he said, "that this has resulted from service advantages we have been able to provide."

"I guess Dad's startin' me in kinda easy. It'll probably be a week or so before I get to grindin' the feed!"

SCREENINGS REGULATIONS

STOCKTON, CAL. — The San Joaquin County Department of Agriculture has clarified conditions under which screenings can move into the county. Shipments can be unloaded without inspection or notification to county officials, providing the load has a certificate from the county of origin stating that it is "free of noxious weeds." If the load has only a "commercially" clean certificate, it will have to be reinspected, as San Joaquin County agricultural officials do not accept these certificates.

TRAVELING SALESMAN... KRAFT STYLE!

Have you ever heard the one about the traveling salesman who stopped at the farmer's house? In the modern version, the salesmen are Kraft Flying Farm Reporters in helicopters . . . they're calling on farmers to ask the results of feeding Kraft milk by-product feeds . . . and the results are appearing in Kraft's advertising in the farm publications read by your customers. Here's a truly different kind of testimonial campaign designed to build your sales of Kraft products!

The Kraft 'Kopter also appears at fairs, conventions and farm shows to give rides—all part of a powerful advertising-merchandising program to build your sales of Kraft products. Profit from this unusual promotion by stocking the full line of Kraft milk by-product feeds and ingredients—so you can supply your customers' demands for better animal nutrition, health, appearance and production.

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Importance of Animal Health Stressed by Agriculture Secretary

DES MOINES, IOWA—The importance of animal health was stressed recently in a statement prepared for the Animal Health Institute by Ezra Taft Benson, secretary of agriculture.

The statement was issued in connection with the AHI's designation of April as Animal Health Month.

The institute explained that Animal Health Month is designed to (1) focus attention on the livestock and poultry producers' job in providing consumers with abundant livestock products, and (2) recognize the contributions of scientists working in all fields of disease prevention and cure and animal nutrition.

Mr. Benson said, "A healthy livestock population is as important to the nation's consumers as it is to ranchers and farmers. The U.S. Department of Agriculture, through the years, has worked with livestock producers and the industry to assure high quality meat and meat products for the U.S. dinner table.

"The close relationship between animal health and human health goes beyond the provision of an adequate meat supply. Many animal diseases are vitally important to the health of our people.

"Part of the medical victory over human tuberculosis can be traced to the steady reduction of that disease in cattle. As we have reduced the rate of brucellosis infection among cattle, the incidence of undulant fever—its counterpart in man—has also declined . . .

"Although relatively few of the animals now presented for slaughter are diseased, nevertheless condemnations of meat and poultry average one million pounds each day. These condemnations assure the housewife that the meat and meat products originating on our farms and passing through interstate commercial channels are wholesome and properly labeled.

"The Department, in its regulatory programs, gives producers its research findings on ways to safeguard livestock from disease and pests, and in turn learns from farmers about problems that are not yielding to our present determined efforts.

"USDA scientists share with those who work in universities and in industry, and with practitioners of veterinary medicine in farm communities, a responsibility to further improve the health of our livestock. Together we can continue to make this nation's food the best and safest in the world."

Animal Health Month

Dal Bruner, executive secretary of AHI, said Animal Health Month "is designed first of all, to focus the attention of the public on the magnificent job that the nation's livestock and poultry producers are doing to provide consumers with an abundant supply of the finest quality meat, milk, eggs, poultry and other livestock products it is possible to produce."

Mr. Bruner said that it is also the time when the contributions of thousands of scientists working in all fields of disease prevention and cure and animal nutrition can be properly recognized. The opportunities for still further progress will be emphasized during April.

The fourth Distinguished Service Research Award will be presented to one of the nation's outstanding research scientists at a special luncheon on April 19 in connection with the institute's 20th annual meeting. The AHI award consists of an engraved bronze plaque and a $1,000 honorarium.

The meeting will be held April 17-19 at the Shoreham Hotel in Washington.

LIQUID SUPPLEMENT DEALER

DELTA, COLO.—United Produce Co., Delta, has been appointed a mixer-distributor of Morea liquid supplement, according to an announcement by U.S. Industrial Chemicals Co., New York.

Hubbard Milling Adds Two More Research, Demonstration Farms

MANKATO, MINN. — Acquisition of two farms near the present Hubbard Milling Co. research farm about two miles north of here will provide for more extensive research as well as practical demonstration of Hubbard Sunshine feeding programs, Hubbard management has announced.

Earl R. Klenk, manager, Hubbard's business development department, will direct and coordinate operations on the three farms.

Farm No. 2 has 166 acres and farm No. 3 has 144 acres, a total of 310 acres to be added to the limited space of the first research farm. Hubbard officials said all the land will be cropped. The Soil Conservation Service has completed a survey which will determine crop rotation, terracing, grass waterways and fertilization.

"We also will cooperate with the Blue Earth County Extension office in test plots which will be of general interest and value to farmers of this area," Mr. Klenk said.

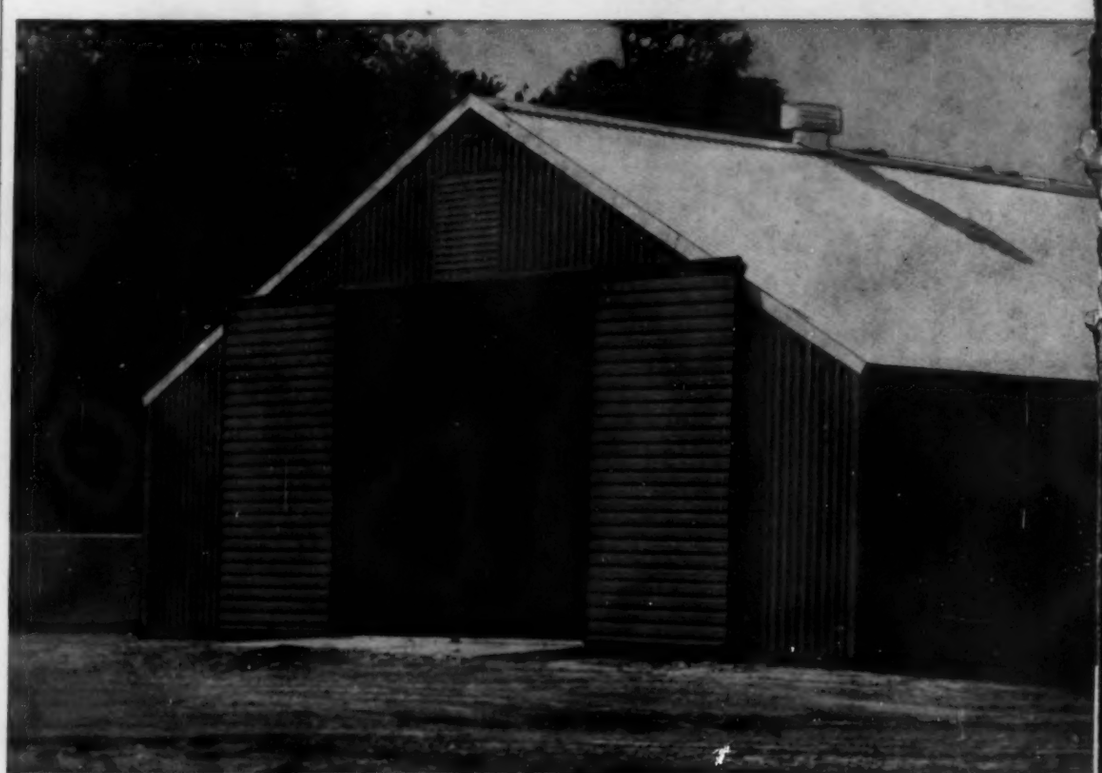
George Patrias, director of research and nutrition, will set up the feeding programs and feeding experiments conducted on all three farms, while Dr. Steve Nemeth, his assistant, who has a doctor's degree in genetics from the University of Hungary, will be in charge of the breeding program.

Plans for Flocks and Herds

As the three farms develop and become coordinated, the original farm will have a flock of 1,000 laying hens (Hy-Lines for 1960 are already on order) and will include the bred sow portion of the hog program.

Also, two sow pools of 40 head each will be maintained on the No. 1 farm and each sow will farrow two litters each year. This will mean, said Mr. Klenk, that 1,500 or more pigs will be farrowed in the area

NEW ECONOMICAL STRAN-STEEL
Grain-Master "44"
FOR COMMERCIAL GRAIN STORAGE



GRAIN-MASTER "100"—This Grain-Master "100", located near Wallula, Wash., provides a maximum of clear-span storage space. Rigid-Frame Grain-Master "100" buildings are 100 ft. wide, 25 ft. at the eaves and 53 ft. at the peak. Minimum length is 72 ft. with additional sections of 25 ft.

RIGID-FRAME BUILDINGS—These Rigid-Frame buildings at Tolono, Ill., feature double wall construction, USDA approved aeration system and wall to wall column-free storage space. Perfectly suited for terminal and subterminal use, Stran-Steel Rigid-Frame buildings are available in widths from 40 to 120 ft.

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MID-CONTINENT GRAIN CO.
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Fleischmann's
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now devoted to hog production and also will occupy the area formerly devoted to turkey breeder flocks.

Construction is to start this spring on a pole-type hog finishing barn on farm No. 2, and all pigs farrowed on No. 1 will be moved to No. 2 for growing and finishing. The first structure will be expandable to permit greater numbers later, if desired.

Acquired with the No. 2 farm was a herd of 32 graded Holstein milk cows and eight heifers. Dr. Nemeth reported that without culling any animals from the herd, "improved feeding and management practices have increased milk production from an annual average of 9,581 lb. per cow in September to 11,787 lb. per cow in January."

Mr. Klenk explained that present plans call for the construction of a new dairy barn on the No. 2 farm in 1962, and it probably will be of the loafing area and milking parlor type. The present barn then will be devoted to a freshening area, and a developing area for heifers. Eventually, the milking herd may be expanded to 75 or more head.

Turkey Flock Started

On the No. 3 farm the present hen house is being converted into a turkey brooder house. The first flock of 1,600 bronze turkeys has been started. A second batch of 1,600 bronze turkeys will be started later, and a third flock of whites will wind up the growing season.

Farm No. 3 also will be headquarters for beef cattle operations and a beef barn is scheduled for construction in August, with the first lot of 50-75 steers to start in October.

FEED FIRM MOVES

CORDELE, GA.—Cordele Feed & Farm Supply Co. has moved to a new location at 1501 Sixth St. So. The company has added storage tanks and storage facilities for farmers and has also started manufacturing chicken feed. Charles Warren is manager of the store.

Fish Meal, Scrap Production Rises

WASHINGTON — Fish meal and scrap production increased by 49,000 tons in 1959 over 1958, according to a fish meal and oil report of the U.S. Department of the Interior. Total production in 1959 amounted to 275,000 tons, the report says.

The December, 1959, meal and scrap figure also was up over the previous year. Some 14,381 tons were produced in December, a gain of 2% over December, 1958, production, when 14,126 tons were produced.

Imports of fish meal and scrap in December fell off correspondingly, totaling 6,000 tons, 3,000 tons below December, 1958. Imports of this item for the year during 1959 were up, however, totaling 133,000 tons—33,000 tons more than in 1958.

Menhaden meal manufactured during December, 1959, totaled 12,000 tons, 663 tons greater than the same month of 1958.

T. B. Preston C. E. Taylor

Oakes Mfg. Makes 3 Sales Appointments

TIPTON, IND.—Oakes Manufacturing Co., Tipton, an operation of Food Machinery & Chemical Corp., announces the appointments of Thomas B. Preston as general sales manager in Tipton, Charles E. Taylor as western sales manager and Robert A. Young as eastern sales manager.

R. A. Young

These appointments are part of an expanded sales organization and program for the Oakes line of poultry, hog and spraying and dusting equipment.

Jacobson Machine Firm To Celebrate 50th Year

MINNEAPOLIS — Jacobson Machine Works, Inc., Minneapolis, is making plans to celebrate its 50th year of service to the feed industry, according to Ralph M. Jacobson, vice president and general manager.

Tentatively included in the plans are sales meetings for Jacobson dealers and representatives, as well as an open house for dealers, suppliers and customers.

Howard C. Jacobson, president, said that when it was founded in 1910 by Axel E. Jacobson, the firm originally specialized in the repair and improvement of grinding equipment for Minneapolis milling firms. With the development of its own line of hammermills and related equipment, the firm began a period of real growth, he said.

GRAIN FIRM EXPANDS

WALLA WALLA, WASH. — River Grain Terminals, Inc., which recently spent $100,000 constructing its present plant, is engaged in a $500,000 expansion program. Construction of the new unit is expected to be completed next month.

LOADS FASTER, EASIER! The economy of the Grain-Master "44" starts with savings in loading and unloading. A steep 30-degree roof pitch and convenient loading hatches permit fast, full loading with no extra interior handling, no extra labor costs. And, the three-piece door bulkhead brings added savings in unloading time.

PROTECTS BETTER! Safer storage means even more savings with the Grain-Master "44". Single or double wall construction, plus weathertight hatches and fasteners, assures all weather protection. Stran-Steel aeration system with Air-Meter uniformly ventilates all of the grain; the highly reflective White Stran-Satin roof means cooler, safer storage during the summer months. The Grain-Master "44" is qualified for government storage.

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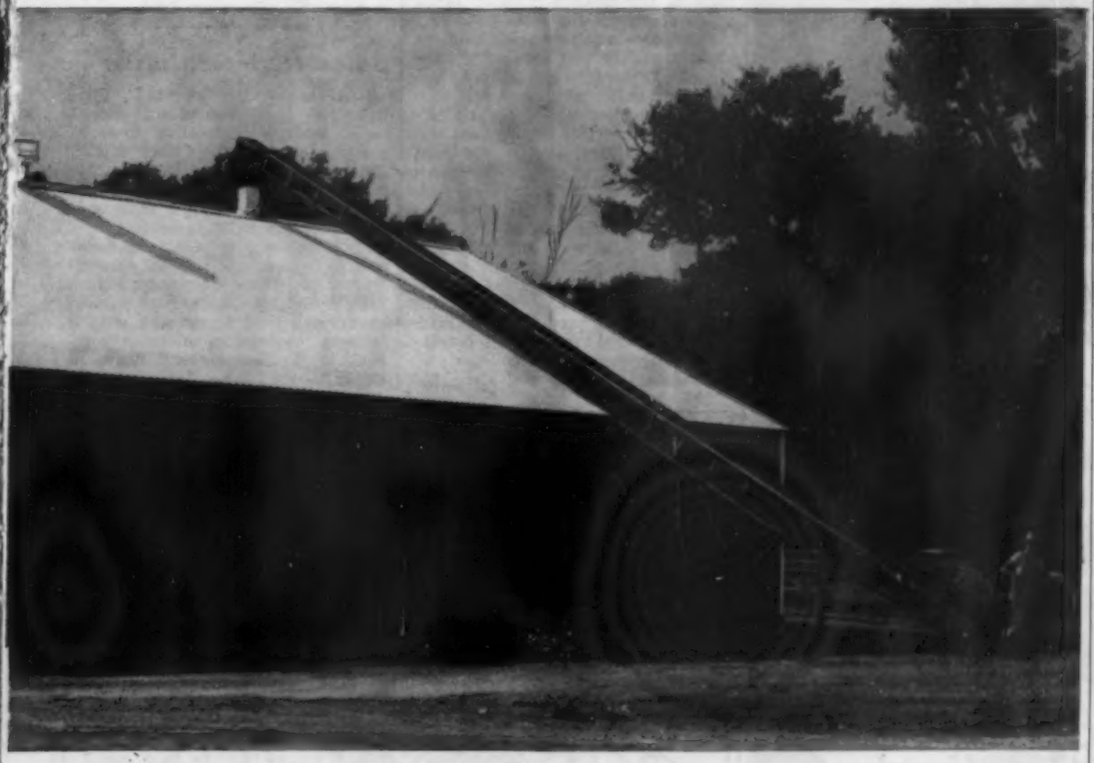
COSTS LESS! Offering the strength and protection usually found only in higher priced buildings, the economical Grain-Master "44" costs less to operate, to maintain and to buy. And the flexible Stran-Steel Grain Storage Purchase Plan lets you finance the complete building directly through your Stran-Steel dealer. For more information, see your dealer or mail coupon.



A Grain-Master "44" like this one located near McCool Jct., Nebraska, can serve all the needs of country elevators, including supplemental storage of grain and of such supplies as feed, seed and fertilizer. Grain-Master "44" buildings are 44 ft. wide with a 21-ft. peak and 10-ft. eaves. Available in any length in multiples of 16 ft.

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This is an architect's drawing of the main research and administration building at the American Cyanamid Co.'s Princeton, N.J., agricultural center as the unit will appear when completed in 1961. The animal science wing of the campus-type structure is at the left, and the plant science wing with adjoining greenhouses is at the right. The chemistry section will be housed in the middle portion.

Work Under Way On New Cyanamid Agricultural Center

PRINCETON, N.J. — Construction work is under way on the American Cyanamid Co.'s new agricultural center, located on 640 acres near Princeton. A company spokesman said that the center will combine modern facilities for laboratory research and development work with practical field testing conditions.

Research efforts will be on animal and plant health, food preservation and professional veterinary products.

The focal point for the activities will be the main research and administration building illustrated in the accompanying drawing.

After the laboratory tests, it was noted, researchers will conduct more tests at the center's research farm, which surrounds the main building.

Farm buildings now being built include a poultry unit capable of handling 28,000 broilers on test in a year, or a comparable number of layers; a swine production unit including farrowing stalls, drylot feeding pens and rotating pastures; and a ruminant section with barns and pastures. Already in operation is the large animal isolation unit which permits simultaneous studies on 20 groups of animals infected with contagious diseases. Twelve poultry isolation pens are included in this unit. After testing in the laboratories and on the research farm, products are field-tested on leased farms and in cooperative experiments with colleges.

Cyanamid officials said some 350 persons will be employed at the center when it is fully staffed. Some 500 acres of the 640-acre farm will be in crops, with 100 left in woodland and 15 acres devoted to animal test activities.

Multiwall Bag Sales Representative Named

NEW YORK—West Virginia Pulp & Paper Co. has appointed Tom R. Jones as sales representative for its multiwall bag division in western New York to succeed George H. Doherty, retired.

Mr. Jones will continue to service clients in Pittsburgh and western Pennsylvania in addition to his new territory, according to R. C. Masoner, district sales manager for Westvaco in Columbus, Ohio. Mr. Jones, a graduate of Ohio University, has been in multiwall sales since 1956.

Sales Representative

RAHWAY, N.J.—Robert D. Dueland has been named an animal health sales representative, to serve eastern Iowa for the Merck & Co., Inc., chemical division, Rahway. He will report to David G. Stephen, northwest region manager of agricultural products in Minneapolis.

Mr. Dueland received his bachelor of science degree in animal husbandry at Iowa State University. Before joining Merck, Mr. Dueland worked as a retail field serviceman with a farmers cooperative elevator company in Waukee. He will reside in Cedar Rapids, Iowa.

SELLIN' SAM By Jim Zilverberg

"Well, since I am a feed salesman it sounded like a good idea when Sam suggested it!"

Research News AND Review

A roundup of scientific information prepared for the feed industry
Reprinted complete from AGRAData, Vol. 3, No. 4

Pfizer

RUMINANT NUTRITION AND PHYSIOLOGY

The most important contribution to the nutritional, to the economical, welfare of man is the symbiotic relationship which exists between mammals and the microorganisms that are found in the cud chewing animals, the ruminants. They are the most important that man has brought to his use as sources of power, clothing and food. The world without the cow, sheep, goat, camel, water buffalo, llama, yak and reindeer would be far different than it has been or is. Without domestic and wild ruminants it would be difficult to feed the present population of the world, for a large part of the yearly forage crop now used to produce food for man would be returned to the soil as it is formed by the plant, or it would be used by organisms that cannot be eaten by man or, at least, are not now so consumed (1).

The ruminant with its intrinsic "fermentation vat" represents one of the most important and intriguing examples of symbiosis known to man. The versatility which this symbiotic relationship imparts has, without question, made it possible for the ruminant to play a major role in the economic development of both forage and grain producing areas. The large capacity of the ruminant digestive tract, together with the presence of a large microbial population, makes the ruminant especially adapted for the digestion of fibrous feeds. The microbiological breakdown of such feeds provides the host with readily available fatty acids, high quality protein and an array of vitamins, as well as various unidentified growth factors.

The rumen microorganisms, which include many different types (2, 3), are maintained under closely controlled environmental conditions. The food, which is chewed, regurgitated and chewed again, is constantly being stirred by contractions resulting from the direct stimulation of sensitive areas of the stomach walls (4); optimum pH is maintained by a heavy inflow of alkaline saliva; anaerobic conditions are provided by the microbial production of a gaseous mixture composed chiefly of carbon dioxide and methane (5); and temperature is closely controlled by the heat of the animal and heat produced by the fermentation.

Table 1
Percent Capacity of the Total Alimentary Tract (7)

Animal	Stomach	Small Intestine	Caecum and Colon
Cow	71	18	11
Horse	8	30	62
Pig	29	34	37

Although fermentation is a wasteful process in which quantities of energy are lost as heat and methane, it must be kept in mind that the ruminant and other herbivora are utilizing large amounts of feedstuffs, fibrous in nature, that are of little use to man.

Ruminants Differ from Other Herbivora

Most mammals tend to have a microbial population in the large intestine. Thus microbial digestion is not unique in ruminants. In non-ruminants, however, this type of digestion varies in intensity in an animal from one of little importance such as the pig to one of major importance such as the horse. In the case of the horse, as well as in other non-ruminant herbivora such as the rabbit and guinea pig, the caecum and/or colon, which is greatly enlarged, serve as the principal sites of bacterial fermentation. Among these (6) the horse is the most highly developed. Other herbivora range between the bovine and the horse in regard to development of certain areas of the alimentary tract in order to handle large quantities of roughages.

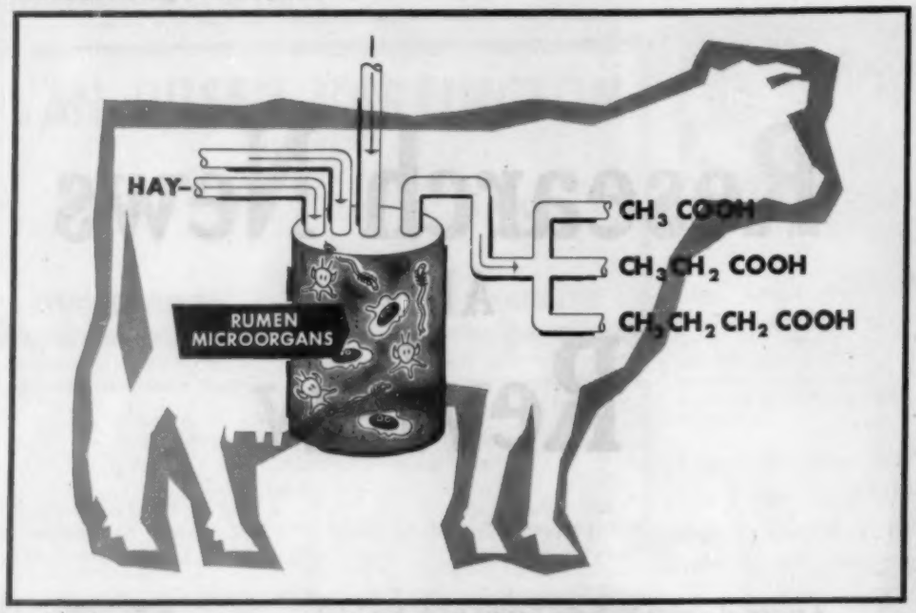
Table 1 shows the relative capacity of the various segments of the alimentary tract of some farm animals. In the case of the pig, there is no area in the alimentary tract to retain fibrous feedstuffs for digestion.

The arrangement, in which the fermentation occurs posterior to the stomach and small intestine, provides only for the utilization of substances produced outside the living bacterial cell or made soluble by autolysis of the dead cell.

This is in contrast with the anterior arrangement of the ruminant which permits digestion of the roughages and other feedstuffs prior to the feedstuffs' entry into the intestinal tract. This system assures maximum absorption of end-products from microbial digestion. On the other hand (6), digestion in the caecum and large intestine may be of limited use due to poor rate of nutrient absorption from that area. Furthermore, the opening from the rumen-reticulo compartments into the remainder of the alimentary tract is small, thus assuring the retention of feedstuffs in the rumen permitting maximum bacterial fermentation. Of the ruminants, beef cattle, dairy cattle and sheep have the most fully developed organs for fermentation of feed materials. For these reasons the ruminants, of all the herbivora, are the

Table 2. Crude Fiber Digestion of Alfalfa Hay

Animal	Percent Digestion
Cattle	44
Sheep	45
Horse	39
Elephant	34
Swine	22



most efficient from the standpoint of roughage digestion and feed utilization.

Table 2 gives the crude fiber digestion of alfalfa for various species of animals. This clearly illustrates the efficacy of the alimentary tract arrangements such as that possessed by the ruminant.

Anatomy and Physiology of Ruminant Digestion

The ruminant stomach is divided into four distinct compartments, the largest of which is the rumen. The reticulo-rumen comprise the "fermentation vat." The third compartment, the omasum, sometimes called many-plies because of characteristic folds which increase the surface area of the walls, is believed to function in absorption and to exert an abrasive action upon the material passing through to the abomasum. The abomasum is the true stomach and is analogous to the stomach of non-ruminants.

At birth the calf has a rudimentary rumen which develops to a functional state in 4 to 6 weeks (8). Until the time that the rumen reaches a functional stage, the calf depends largely upon colostrum and milk as a source of vitamins and preformed protein. Earlier development of rumen function can be promoted by including good quality roughage in the ration (9, 10, 11). Calves fed solid feed and limited milk have been shown to exhibit a sharp fall in aerobic bacteria, an increase in total bacteria and the establishment of protozoa during the first 3 weeks. Rumen fatty acids by 6 weeks reached adult levels and cellulolytic activity by 9 weeks was equivalent to that in adult cattle (8).

It has been recently shown that sodium butyrate and sodium propionate have a stimulatory effect on the development of rumen mucosa in the young calf (12). Sodium acetate, sodium chloride and glucose, on the other hand, had no effect. These observations suggest that development of rumen papillae may be due to the metabolism of these compounds by the rumen wall or possibly by their effect on blood flow.

The saliva of ruminants, unlike that of non-ruminants, contains no enzymes to aid in the digestion of starches or similar material. It does, however, contain sodium bicarbonate which neutralizes the fatty acids produced in the rumen. The flow of saliva, estimated to be 50-60 kilograms per day in a mature cow (13, 14), is sufficient to maintain the pH of the rumen contents at approximately neutral (15). Since there also appears to be no enzymes secreted by the rumen, reticulum and omasum, it seems that all chemical changes occurring in this part of the digestive tract are due to the action of microorganisms. The abomasum on the other hand secretes gastric juices and functions essentially the same as the stomach of the non-ruminant.

Cellulose and Starch Digestion

The advent in recent years of the rumen fistula and the artificial rumen technique has provided research tools which have contributed greatly to our knowledge of rumen function. Ruminants are basically forage consumers and digest large amounts of cellulose and other complex carbohydrates. Since no cellulase is secreted by mammalian tissues, the process of cellulose digestion in the ruminant is entirely dependent upon the cellulases secreted by rumen microorganisms. The microorganisms usually gain access or attach themselves to the plant structures at points of fracture (16). In the initial phase the shape of the enzymatic cavities conforms to the outline of the microorganisms. Later, fusion of the zones leads to the formation of extensive zones of erosion. In view of the manner in which the microorganisms attack forage particles, it could be expected that physical factors such as chewing or grinding could increase the number of fractures and thus enhance the rate of cellulose digestion. In the same respect lignin, being nondigestible, may hinder cellulose digestion by protecting it from the action of bacterial enzymes (16, 17). Delignification of cellulose containing plants greatly increases the rate of cellulose digestion *in vitro* (16). In this manner the cellulose of materials such as jute, hemp or sawdust can be made available for digestion. That lignin is a physical factor affecting cellulose digestion is further supported by the observation that the cellulose components of sawdust are digestible *in vitro*, without delignification, if the material is finely ground (18).

X-ray diffraction studies have revealed differences which appear to be correlated with the digestibility of various cellulose sources (19). The observed differences were believed to be due to the degree of packing perfection. The degree of polymerization on the other hand does not appear to have an effect on cellulose digestion. This has been interpreted to mean that the dimensions of the intermicellar spaces are more important than the degree of polymerization in determining the rate of diffusion of enzymes into the material. It is also of interest that cellulose, altered by acetylation or by the formation of methyl esters, is not digested *in vivo* (16).

Starch granules are derived from feed grains or other plants and are digested by the combined action of plant enzymes and rumen microorganisms (20). The digestion of starch, as in the case of cellulose, appears to occur at the point of direct contact between the bacteria and the starch granule. Cellulose and starch are converted to glucose (21), most of which is further degraded to volatile fatty acids. Cellulose appears to go through tetrose and cellobiose intermediates (22, 23). Fermentation of pentosans by rumen microorganisms *in vitro* has also been demonstrated (24).

Volatile Fatty Acid Production

The importance of volatile fatty acids to rumen function cannot be overemphasized. The total volatile fatty acids in rumen contents range from two to five grams per 100 grams of dry matter when expressed as acetic acid (25, 26). It has been estimated that as much as seven pounds of volatile fatty acids may be produced in the rumen per day and that this may supply as high as 40 percent of the energy requirements of cattle (27).

The importance of acetic acid in milk fat production has also been recognized, and it has been estimated that approximately one-half of the milk fat can be synthesized from acetic acid (28, 29). This helps to explain the predominance of short chain fatty acids in milk fat and is further supported by the observation that the fine grinding of hay, which is now known to lower the proportion of acetic acid produced in the rumen, results in a lower production of milk fat (30).

Acetic, propionic and butyric are quantitatively the most important acids occurring in the rumen. These fatty acids have been shown to commonly occur in the proportions of about 65:20:10 with acetic being the most abundant, followed by propionic and butyric. These ratios are not fixed, however, and can be altered by changes in the proportions of hay to grain in the ration and by grinding the hay (31, 32). An increase in the acetic is generally associated with an increase in the proportion of grain to hay in the ration. It has been postulated that the evaluation of a ration for a specific purpose, i.e., the production of flesh, milk or other products, can be made on the basis of the proportion of the various volatile fatty acids resulting from its fermentation in the rumen (32). Longer chain fatty acids, as well as the shorter chain formic acid, are present in the rumen only to a small extent. A lipolytic activity has been demonstrated for rumen microorganisms (33). It would seem feasible, therefore, that free higher fatty acids could originate from ingested triglycerides. Valeric acid (five carbons) represents from one to four percent of the total rumen fatty acids (31, 34). Six carbon fatty acids are less commonly found. The importance of these five and six carbon fatty acids to rumen function is discussed elsewhere in this review.

Volatile fatty acids in the rumen come from several different sources. Silage, containing volatile fatty acids formed during fermentation, is probably the most important dietary source of preformed fatty acids. The remainder are formed in the rumen mainly from the degradation of cellulose, starch and other carbohydrates and to a lesser extent from the deamination of amino acids. The latter source helps to explain the presence of various branched chain fatty acids in the rumen (31). In the artifical rumen about 40 percent of the carbon in cellulose and 50 percent of the carbon of glucose is recovered in short-chain fatty acids (35). The relative proportions of the volatile fatty acids represented by acetic and propionic acids were nearly the same from glucose and cellulose.

Glucose appears to pass to volatile fatty acids by way of pyruvic and lactic acid (36, 37). British workers (38, 39) have suggested that glucose gives rise to pyruvic acid which is further degraded to acetic acid. They further suggested that propionic acid was formed from pyruvic acid through a lactic acid intermediate. The hypothesis for the formation of acetic acid from pyruvate is supported by the fact that pyruvate incubated with rumen microorganisms *in vitro* is quickly converted to acetic, but not propionic acid (35). Other workers (35, 40) accept this as the probable pathway for the formation of acetic acid, but offer evidence which indicates that the major pathway for propionic acid synthesis is by the decarboxylation of succinate.

The origin of butyric acid in the rumen has not been elucidated to any great extent. It appears, however, to have its origin largely from protein and in part from acetic acid (41).

Protein Synthesis

Nitrogen, which is destined to be formed into microbial protein in the rumen, is consumed in two basic forms, preformed protein and non-protein nitrogen. Ammonia, which is derived from both sources, is utilized by the microorganisms for synthesis of protein to be incorporated into their own bodies (42, 43). The microorganisms then are digested and serve as a source of protein for the ruminant host. It is estimated that 50 percent of the crude protein in the ruminant diet is broken down to ammonia (44). From this ammonia rumen microorganisms synthesize in varying quantities all of the ten amino acids that have been shown to be essential for the rat (45). The essential amino acids thus provided allow the ruminant virtual independence from dietary sources of these important entities. The extent of microbial protein production in the adult cow has been estimated to be 100 to 500 gm. per day (46), and has been shown to have a biological value of 55 percent (47) to 88 percent (48, 49) when fed to rats.

The conversion of non-protein nitrogen to protein in the ruminant was seriously questioned even as late as 1937 (50). Experimental results since that time leave no doubt that ruminants can utilize non-protein nitrogen to supply part of their dietary protein needs (51, 52, 53). The feeding value of urea is well known. Certain ammoniated carbohydrate residues, however, appear to be of limited value as protein extenders for ruminants (54, 55). In some of the products it has been shown that the rumen microorganisms cannot utilize the nitrogen.

Vitamin Synthesis

Vitamin synthesis by rumen bacteria was postulated in 1915 (56), but was not demonstrated until 1928 (57). Experiments since that time have served to identify the individual vitamins evolving from rumen bacterial synthesis (58). Rumen microorganisms synthesize all of the known B-complex vitamins, as well as vitamin K. As was the case with essential amino acids, the ruminant is not dependent upon exogenous sources of these vitamins. Further, the ruminant does not require a dietary source of vitamin C. Microorganisms, however, do not generally synthesize vitamin C and it is, in fact, rapidly destroyed in the rumen (59). This suggests that vitamin C is supplied the ruminant through tissue rather than microbial synthesis.

Of the fat soluble vitamins A, D, E and K, vitamin K appears to be the only one synthesized in the rumen (60). Nutritional problems related to vitamin K generally do not result from a lack of the vitamin, but rather from the presence in the diet of a vitamin K antagonist. Dicumarol, causing hemorrhagic sweet clover disease, is one example.

Young calves in which the rumen has not reached a functional stage have dietary vitamin requirements similar to the non-ruminant (61). Deficiencies of biotin and riboflavin have been developed by the feeding of purified type diets to young calves (62).

Factors that affect other rumen functions generally have an effect on vitamin synthesis. Synthesis is increased by supplying readily fermentable carbohydrates (63, 64, 65), and is decreased in instances of low cobalt or sulfur intakes (65).

Trace Mineral Requirements of the Ruminant

Requirements of the ruminant for minerals are believed to be qualitatively similar to that of the non-ruminant, except for the minerals cobalt and

sulfur. For rumen microorganisms incubated *in vitro* the minerals Ca, P, Na, K, Mg, Fe, Cl and S have been recognized to be of major importance (66). In addition extremely low levels of Cu, Co, Zn and B have been shown to depress *in vitro* cellulose digestion (67). The function of cobalt in ruminant nutrition has been extensively reviewed (68). A syndrome, including the symptoms of anorexia and anemia in ruminants, was shown to be due to a cobalt deficiency. This syndrome occurred when the ration contained cobalt at a level less than 0.07 ppm (69). Cobalt salts, when fed, alleviated the condition; when injected, however, they had no effect (70, 71). In 1948 the announcement was made that vitamin B_{12} contained cobalt (72). After this it was only a matter of time before several workers demonstrated that the feeding or injection of vitamin B_{12} alleviated cobalt deficiency symptoms (73, 74, 75, 76). Other studies have demonstrated conclusively that cobalt is incorporated into vitamin B_{12} by rumen microorganisms (77).

A sulfur or sulfate requirement for sheep has been shown through the use of purified type diets (78, 79). Sulfur appears to be incorporated into the amino acids cystine and methionine by the rumen bacteria (80). *In vitro* studies have shown that sulfur as sulfate or methionine is necessary for B-vitamin synthesis, urea utilization and cellulose digestion by rumen bacteria (81).

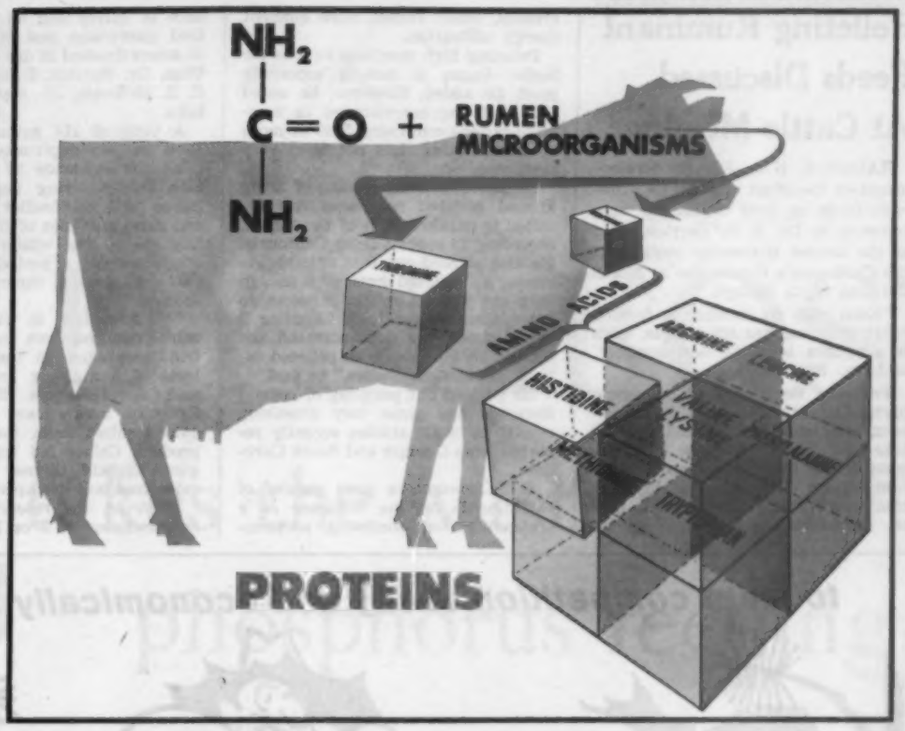
Alfalfa ash or molasses ash enhances *in vitro* microbiological activity under some conditions (66, 82). An understanding of this effect will ensue from future experiments designed to determine the role of various trace minerals in rumen functions.

Rumen Stimulants

During recent years, considerable attention has been given to factors which increase the activity of rumen microorganisms. The activity of washed cell suspensions has been stimulated by the addition of rumen juice (83, 84) and extracts of cow manure and several natural feedstuffs (85, 86, 87). Some of the activity of these natural materials has been shown to be related to the activity observed for more specific factors. The volatile fatty acids valeric, caproic, iso-butyric and iso-valeric have been shown to stimulate cellulose digestion *in vitro* (88). Of these volatile fatty acids, valeric acid has been shown to be responsible for the major portion of the cellulolytic activity of rumen juice. In addition to valeric acid, the B-vitamins biotin and p-amino-benzoic acid were necessary for maximum activity. The organism *Bacteriodes succinogenes* isolated from rumen contents, has been shown to require a branched chain fatty acid (iso-butyric, iso-valeric or DL-a-methyl-n-butyric acid) in addition to a straight chain acid (valeric or caproic) for optimum growth (89).

Other factors having an effect on cellulose digestion by washed cell suspensions were found to be associated with the amino acid or peptide fraction extracted from natural materials (88, 90). These factors having cellulolytic activity were identified as valine, proline, leucine and isoleucine (91). Activity attributed to these amino acids appears to arise through their conversion to fatty acids (92, 93).

Many factors in natural materials which stimulate rumen microorganism activity, are yet unidentified. Little is known of the mechanisms involved.



The Future of Ruminant Nutrition

Even in the light of our present knowledge, the function of the rumen still holds many secrets locked in the individual microbes that comprise the vast microbial population of the rumen. It has been wisely suggested that cattle feeding is becoming a science of bacterial nutrition as well as a science of cattle nutrition (94).

It can be expected that the characteristics which have made the ruminant so valuable in the past will be applied to the utilization of new crops, as well as a variety of agricultural by-products, which can be expected to become more abundant in the future. Basic rumen research holds the key to this storehouse of treasure.

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Pelleting Ruminant Feeds Discussed At Cattle Meeting

RALEIGH, N.C.—Recent developments on the effect of pelleting ruminant feeds on feed utilization were reported by Dr. E. R. Barrick, head of the animal husbandry section, at the Cattlemen's Conference at North Carolina State College.

"Even with no increase in feeding value, pelleting has advantages, since it simplifies handling and feeding," said Dr. Barrick.

Pelleting finely ground roughage, particularly the low quality roughages, has generally increased feed intake and rate of gain, he said. Digestibility is usually decreased as the feed moves through the digestive tract much faster. However, he noted, propionate production is increased, which favors more efficient energy utilization.

Pelleting high roughage rations for feeder lambs is looking especially good, he added. However, he noted that pelleting concentrates or complete rations containing 50% or more of concentrates "has not been very promising."

He noted that the feeding of finely ground pelleted roughages has resulted in parakeratosis of the rumen, according to reports from California. He also pointed out that animals receiving all pelleted diets, even though they are high in roughage, seem to crave some coarse feed. "Feeding 2 lb. of straw per day increased the performance of cattle on pelleted rations in Montana studies," he said.

He pointed out pelleting of coastal Bermuda had given very promising results in cattle studies recently reported from Georgia and South Carolina.

Four researchers gave results of experiments on the influence of a tranquilizer on wintering performance of calves and on performance, feed conversion and carcass grades of steers finished in dry lot. Dr. M. B. Wise, Dr. Barrick, D. G. Spruill and C. Z. McSwain, Jr., reported the results.

A total of 114 animals were utilized in two experiments to determine the influence of trifluomeprazine on wintering performance of calves and on feedlot performance and carcass grades of fattening yearling steers. The wintering trial was conducted for a period of 112 days and the fattening experiment for 102 days.

"No advantage in winter gains of calves resulted from the inclusion of trifluomeprazine in the ration at a level of 5 mg. per head per day," said the researchers. "Slight but statistically insignificant decreases in gain resulted from the use of this product. Calves fed trifluomeprazine were slightly thinner and a little more feed was used per unit gain."

However, the researchers pointed out, inclusion of 5 or 10 mg. of trifluomeprazine in a ration based on ground ear corn, and in which the steers had been implanted with 24 mg. of diethylstilbestrol, resulted in slight increases in gain among fattening steers. On the other hand, there was a statistically insignificant increase in shrink and a decrease in dressing percent, carcass grade and feed efficiency, they noted.

"Although the need for further work is apparent, on the basis of these data, the value of trifluomeprazine in rations for beef cattle is doubtful," the researchers said.

Engineer Moved to Territory in Iowa

CLEVELAND, OHIO — A change in territory for Donald B. Lee has been announced by V. D. Anderson Co., manufacturer and supplier of expellers, solvent extraction units and related equipment.

Donald B. Lee

Formerly located in Portland, Ind., Mr. Lee will be headquartered in Boone, Iowa. He will service North Dakota, South Dakota, Nebraska, Kansas, Minnesota, Iowa, Missouri, Wisconsin and Illinois.

Comments on Checking Bulk Truck Weights

SEATTLE, WASH. — Allen Baker, supervisor, feed, grain and chemical division, Washington State Department of Agriculture, has noted that inspectors "are experiencing a bit of abuse" because of the state's program of checking bulk feed truck weights. This comment is reported in a recent bulletin of the Washington State Feed Assn., Inc., Seattle.

"Our public relations in this kind of investigation seems of necessity to be poor," he said, "because of the nature of an enforcement program in bulk checks. With packaged goods sampling, we can go in and introduce ourselves, and generally we get good cooperation. But perhaps because of the fact that this has been done, in the case of bulk checks the difference in operation is so great, we seem to get into difficulty.

"In bulk checking, we need to do the work without first approaching the proprietorship, or our enforcement is valueless."

Sales Representative

CHICAGO—Gerald (Jerry) Zirbel has been named sales representative by Panogen Co. division of Morton Chemical Co., Chicago. He will contact distributors and dealers in the company's north central region where Lin Mercil is regional manager.

Mr. Zirbel was formerly with Peavey Feed Mills, Minneapolis. He will headquarter at Detroit Lakes, Minn., and travel in Minnesota and North Dakota.

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California Workers Report on Results Of Tranquilizer Tests

DAVIS, CAL.—University of California animal scientists at Davis and farm advisers in various California counties report that "no significant gains" in weight have resulted from feeding or injecting tranquilizers in beef cattle in four experimental trials.

"The evidence of California trials is certainly not conclusive," said Dr. M. T. Clegg, Davis physiologist, "but results are so consistently negative that it is reasonable to doubt that tranquilizers will ever regularly approach the value of other well established practices." Dr. Clegg noted that most of the university's work has been with injectable tranquilizers. In two trials the drug was fed to the animals. "In neither case were tranquilizers beneficial," he said.

"Although tranquilizers cannot be recommended to increase beef gains, they have, in some cases, proved beneficial when used only to calm young calves under stress," Dr. Clegg continued.

"From our work with tranquilizers it appears to us that the drugs will find their greatest usefulness in reducing excessive excitement in calves being weaned or transported," said Dr. P. C. Enge, extension veterinarian at Davis. "If excitement is reduced, stress is reduced, and the calves are less susceptible to a disease like shipping fever. Also, the calves will be quieter and there will be less damage to fences and corrals."

Dr. Clegg cited the results of the two trials in which the drug was fed at the recommended dose to young steers:

In a Sacramento county trial, held in cooperation with James Elings, farm advisor, 50 animals treated with a combination of stilbestrol and tranquilizer showed smaller gains than a control group fed stilbestrol alone. Another group fed tranquilizers alone gained "still less than the controls," according to Dr. Clegg.

In another trial held in a Blythe commercial feed lot—where the tranquilizer was fed as recommended by the manufacturer—Dr. Clegg and Donald Addis, Riverside County farm advisor, "again failed to find any noticeable gain produced by the drug."

A report on a Placer County test of tranquilized weaner calves, conducted by Dr. Enge and Walter Johnson, farm advisor, states: "Tranquilizing did not reduce weight loss or increase weight gain in the 530-day period following weaning. If any conclusions can be drawn, the control animals (that received no drugs) gained more weight than the tranquilized animals during the test period."

Reuben Albaugh, extension beef cattle specialist, added to the comment of the others, "In a test on a ranch in Humboldt County with mature 700-lb. cattle, injected tranquilizers did not reduce shrinkage."

"It was apparent," pointed out Dr. Enge, who conducted the Humboldt trial with Mr. Albaugh and W. D. Pine, farm advisor, "that animals treated with the tranquilizer did not eat or drink as much as the untreated controls."

Proper Use Advised

Several cases of tranquilized steers being injured during shipment have been reported, Dr. Enge added. "Evidently the animals were overdrugged," he said. "They 'went down,' didn't care enough to get back up, and so were trampled. This points up the danger of misusing the drugs. They should be administered only under the guidance of a veterinarian."

Dr. Clegg summarized the report this way: "Although our results do not support the addition of tranquilizers to a fattening ration, we will continue our investigation. We would like to find out, for instance, if we can obtain beneficial responses by varying the dose or by using the drugs in different environments."

FEED SHARE OF ALL MOLASSES AT PEAK

WASHINGTON — Although the volume of molasses used for feed last year—425 million gallons—was not a record, the feeding percentage of total molasses utilization was at an all-time high, the U.S. Department of Agriculture reports.

Molasses utilization totaled 546 million gallons in 1959—5% less than in 1958 and 16% less than the record 648 million gallons used in 1953. Seventy-eight per cent of the total molasses used last year went for livestock feed.

Northern Biochemical Names Field Supervisor

SHELDON, IOWA—Orville A. Ohlen, Belmond, Iowa, has been appointed field supervisor for Northern Biochemical Corp., Sheldon.

O. A. Ohlen

Mr. Ohlen served Watkins Co. as a feed salesman in Georgia, and for the past three years has been a fieldman with that company in South Dakota and western Iowa. Northern Biochemical manufactures enzyme additives for feeds.

New Midstate Division

DECATUR, ILL.—Midstate Machinery Co., Decatur, has established a new division to specialize in the construction of poured concrete grain storage bins, elevator construction and maintenance, fertilizer plan construction and equipment installation, and complete millwright service.

Abe L. McCoskey has been named to head the new division. He is a veteran of 15 years in this field. He was formerly construction superintendent for the J. E. Reeser Co., Maroa, Ill.

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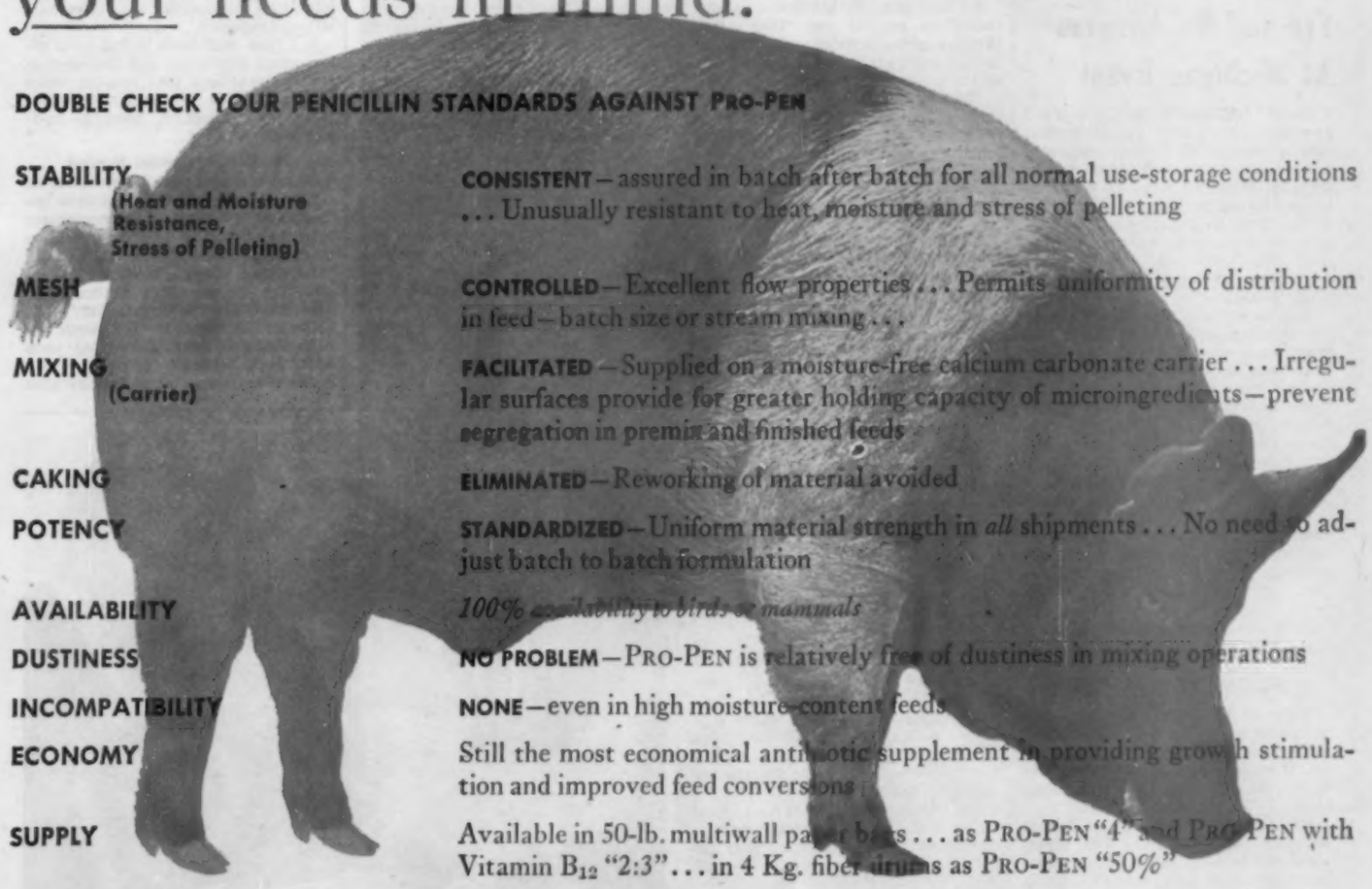

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WINS ADVERTISING AWARD—Pay Way Feed Mills, Kansas City, was cited by the Advertising Club of Denver for "advertising excellence." A bronze Nike Award was presented to the firm for winning first place in the farm and livestock division of awards at a banquet held in Denver March 8. Bud Hilker, president of the Denver Ad Club, made the presentation to Max Straube, president of Pay Way. In the picture are the persons who worked together on Pay Way's advertising program (left to right): Larry Alley, vice president and factory manager of Pay Way; Mr. Straube; Gene Pilz, co-owner of Prescott and Pilz Advertising Agency of Denver, and Dewey Moore, vice president and nutritionist of Pay Way.

Integration Gets Yes and No Answers At Michigan Event

EAST LANSING, MICH.—The president of a feed manufacturing firm, convinced that integration will not replace the individual family farm in Michigan, told an audience of poultrymen here that his company is "sticking to a policy of no integration" because its management believes the "theoretical and assumed" advantages of integration "will not work in reality."

Addressing the same audience at the 45th annual Farmers' Week program sponsored by Michigan State University, a North Carolina State College poultry authority said, "Integration, from the viewpoint of the farmer, takes on the appearance of an all-engulfing octopus, but that is not the total story. Granted, some of the farmer's freedom is surrendered under integration contracts, but in return he gets, in effect, a guaranteed annual wage. He still maintains the decision to remain in business. In a non-integrated situation, even this decision might be denied him, simply from the law of profit and loss."

A Michigan hatcheryman maintained as one of the "Integration Day" program panelists, "Integration is just another step in the progress of the poultry industry."

Three speakers. Three thoughts on integration and how it fits or doesn't fit in today's agricultural economy and, more specifically, whether or not it deserves a place in the feed and poultry industries.

"Making Feed Best Bet"

The feed manufacturer quoted was King Doyle, president, King Milling Co., Lowell, Mich.

Mr. Doyle explained to the poultrymen that his company had rushed into financing and contracting of poultry a number of years ago but sustained some losses because growers couldn't sell broilers at a price high enough to meet production costs.

"We were performing the function of the feed dealer, banker and the marketing agency," he concluded, "and we thought our best bet was to stick to our own business of making feed."

He reported that his company took a double-pronged licking in both financial losses and in subsequent decline in feed tonnage and as a result was not in favor of entering further integration contracts.

South Integrating in Eggs

The North Carolina extension poultryman, Bill Mills, advised Michigan egg producers that they could continue to expect competition from southern hens. He said integration is rapidly becoming a part of the industry in the South.

Mr. Mills predicted that most states would become self-sufficient in egg supplies and speculated that the South could become a major egg producer in future years.

"How did we get in the egg business?" he queried. "Frankly, our farmers needed the money. Our success with the broiler and hatching egg business made a marriage to the egg industry a 'natural'. Other sections were demonstrating profits in the business so Southern farmers decided to share markets with them. Georgia expanded egg production by 42% in 1959; Mississippi may double production in 1960, and you might reasonably expect to share the egg market with the South to a greater extent than in the past."

Mr. Mills noted that North Carolina poultrymen were producing eggs for 29@36¢ doz. and believed that with increased volume and mechanization this could be dropped to 25¢. He said most southern flocks range from 2,000 to 15,000 birds with one man caring for about 5,000 hens, and he indicated that mechanization was growing rapidly and that a mild climate did permit economy in housing.

Changes in Chick Business

The hatcheryman, Dale Reichard of the Rainbow Trail Hatchery, St. Louis, Mich., listed five significant changes in the chick business over the past 20 years. Increased volume, improved breeding, speculation, service and started pullets, he asserted, are the elements of a changing scene in the Michigan hatchery business.

"Twenty years ago we hatched 250,000 chicks in a season that lasted from February to July, while today we've increased to over a million on a year-around basis," he stated.

As late as the early 40's, he recalled, the hatchery produced as high as 20 breeds and varieties of chicks. Today, four breeds are adequate to supply 99% of the orders. Mr. Reichard reminded poultrymen that the modern chick is also hardier, more disease-resistant, and grows into a higher-producing hen or heavier broiler.

The commercial hatcheryman declared that integration has definitely increased speculation in the current operation.

"Used to be we had firm orders on all our chicks before they went in the incubator," he recounted. "Recently we found ourselves with 16,000 chicks in the battery brooders and another 18,000 in boxes, with no definite home for any of them. Of course, now when the phone rings, it may be someone wanting not a few hundred chicks, but 5-10 thousand, perhaps a week old or even started pullets at 16 weeks."

"Before integration," Mr. Reichard continued, "we had the firm belief that the only chicks a hatcheryman could raise were those he couldn't sell. Until a year ago our hatchery didn't own as much as a brooder house. Integration with egg production now finds us with brooding facilities for 15,000 pullets and another 20,000 pullets on our farm and with contract growers. I think you'll agree that integration has certainly affected us."

Service, he stressed was still another result of integration.

"Sympathy is not what a customer wants," the hatcheryman added, "he needs help and expects to get it. When the chicks leave the hatchery we have, in effect, promised the customer a 24-hour poultry diagnostic service, 'until death do us part,' a promise that must be fulfilled on holidays, Sundays or any time of day or night.

"It is demanding, but represents just a part of the hatchery picture today."

Integration and Disease

Large integrated poultry flocks should improve the handling of poultry disease problems, according to another Farmer's Week speaker, Dr. Carlton C. Ellis, poultry pathologist at Michigan State University.

"Veterinarians, service men and the Michigan State diagnostic laboratory can be used to better advantage because more birds are involved in each flock. A disease outbreak in these flocks would be disastrous," he said.

Dr. Ellis gave these reasons for optimism about disease control in large flocks:

1. The owners usually keep fairly complete records. This should help the diagnostic laboratory track down disease conditions.

2. Replacement producers will control the vaccination programs. As a result, he said, these programs should become more uniform. That holds true for fowl pox, Newcastle disease, infectious bronchitis and infectious laryngotracheitis.

3. Large, well-built laying units allow many sanitation and disease-prevention practices that smaller units seldom provide. These practices involve flock selection, housing, feeding and watering.

More Skill, Capital Needed

Today's poultryman needs a lot of skill and more capital than ever before, said Leonard A. Chrestensen, secretary-treasurer of the Production Credit Assn. of Traverse City.

"A farmer needs $25,000 net worth with few or no debts to finance a new 2,000-unit poultry house," Mr. Chrestensen related. "He needs an added $10,000 net worth for each 1,000 birds housed."

Here are some other factors that

TESTING FEED MADE FROM NEWSPRINT

VANCOUVER, B.C.—It may get to the point that cattle will want their newspaper at the "breakfast table," too, if experiments at the University of British Columbia prove satisfactory.

Dr. A. J. Wood, division of animal science, is experimenting with a pelleted cattle feed made from newsprint, vitamins and minerals. It is said that necessary processing methods have progressed to the point that arrangements are being made to produce sufficient quantities of this ration for large-scale feeding trials. The newsprint "roughage" contains 90% cellulose.

Scientists in both Germany and England attempted to devise methods of incorporating newsprint into rations during the World War I and II periods, but Dr. Wood has added further refinements in processing—among them pelleting. He also has worked extensively on high-screening pellets for other livestock in working for lower cost, more efficient rations.

BELGIANS ADMIRE CHAMP ROOSTER—A champion rooster from the Honegger Breeder Hatchery, whose entries won all three egg laying contests in Belgium this year, is shown to European visitors. Admiring the bird are (left to right): Sam and Frank Honegger, Forrest, Ill.; A. Aerts, manager of the Belgian Feed Manufacturers Assn., and M. Van Dyke, Brussels feed nutritionist, who organized a tour of 21 Belgian feed makers who visited the Honeggers' feed and poultry operation.

Mr. Chrestensen looks for in financing egg farmers:

1. Management ability. This includes the ability to delegate work and see that it gets finished. It also involves keeping up with rapid business change and analyzing well-kept records.

2. Housing that's well insulated and ventilated. Then a high concentration of chickens won't built up moisture.

3. Good chickens that lay at least 240 eggs a year per bird housed.

4. High quality feed that's consistently the same.

5. A guaranteed market at a published market price.

Turkey Future

What's the future of turkey production in Michigan? Not very bright, according to an Illinois turkey authority, D. D. Moyer, A. E. Staley Co., Decatur, Ill., who reported that other areas of the Corn Belt have been expanding production at a rapid rate while feed ratios grow more unfavorable.

While the number of turkeys in Michigan has declined in the last few years, production has not changed greatly in the last 15 years, the former Michigan State staff member noted, and while Michigan production has remained relatively stable, Mr. Moyer emphasized, states like Iowa, Minnesota and Wisconsin have doubled and even tripled turkey numbers, even in the face of declining feed-price ratios.

Mr. Moyer listed several reasons for the rapid growth in some Corn Belt states where land is valuable:

1. Confinement rearing, releasing high-priced land from turkey range.

2. Turkeys are heavy consumers of corn and soybean oil meal, giving Corn Belt states a feed price advantage.

3. Leadership in the industry has convinced producers that turkeys can be profitable.

4. The highly specialized nature of turkey growing.

5. Large and efficient processing plants are competitively bidding for supply.

In 1959, Mr. Moyer reminded turkey growers, the feed price ratio (number of pounds of feed that one pound of turkey would buy) for the entire U.S. was 6.8 lb. For Michigan, the figure was 6.3. Similar ratios for other Corn Belt states ranged from 7.1 to 8.2, giving them distinct advantages over Michigan in feed costs.

"Unless Michigan can match some of the advantages already established in other states, it is going to be difficult to expand turkey production," Mr. Moyer commented. He added that many industry experts believe that production centers may move to more southern states like Arkansas and Missouri and the Southeast.

Texas A&M Poultry Department Sets Cage Clinic for March 30

COLLEGE STATION, TEXAS—Program plans for the 1960 Cage Clinic scheduled for March 30 at the Texas A&M College Memorial Student Center, have been announced by B. C. Wormeli, extension poultry husbandman, Texas A&M.

Morning speakers and their topics include the following: "Meeting the Needs of Agriculture for Competent Men," Dr. G. W. Watkins, dean of agriculture, Texas A&M; "What California Egg Production Cost Summaries Show," William F. Rooney, California extension poultryman; "Report on Recent Chick Brooding Temperature and Management Tests," Dr. W. F. Krueger, poultry science department; "Research Results on Protein-Energy Levels for Cage Layers," Dr. J. H. Quisenberry, head, poultry science department, and "Where and How the Table Eggs of Tomorrow Will Be Produced," A. W. Jasper, Farm Bureau, Chicago.

Afternoon discussion will include: "Texas Random Sample Performance Tests Reveal the Characters that Determine a Hen's Real Worth," W. O. Cawley, assistant extension poultry husbandman; "How to Breed the Superior Egg Strains," Fred T. Schultz, Livermore, Cal., consulting geneticist, Colonial Poultry Farms; "Nutritional Requirements of a Caged Layer," Dr. J. R. Couch, poultry science department; "The Latest Vaccination and Health Program for Pullets and Laying Hens," Dr. A. I. Flowers, veterinary medicine department; "Laying House Management Practice in California," William F. Rooney, California extension poultryman, and "Comparative Egg Production Costs—Single, Double and Colony Cages," B. B. Bailey, poultry science department.

Mr. Wormeli said the number of laying hens kept in cages in Texas continues to expand. County agents estimate the following figures: 1953, 272,000; 1954, 901,000; 1955, 1,243,000; 1956, 1,647,000; 1957, 2,406,000; 1958, 3,556,000, and 1959, 4,787,000 (1,404,000 of them in colony cages).

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HOOKER CHEMICALS PLASTICS

Pelleted Concentrates For Dairy Cows

By Dr. G. E. Hawkins
Alabama Polytechnic Institute

The percentage of dairy concentrate sold in the pelleted form is increasing rapidly. Pelleted concentrates are relatively easy to handle in bulk. Other desirable features of pelleted concentrates include (a) a minimum amount of dust created during handling and (b) they are adapted to auger-gravity feeding systems employed in milking parlors.

A rapid eating rate is desirable where high producing cows are milked and fed in a parlor. Recent research reports show that dairy cows ate pelleted concentrates faster than they ate the same feed ingredients in meal form (Table 1). Some cows refused pelleted concentrate during the first three or four feedings (2). After a short adaptation period, however, pellets, cubes and mash were equally acceptable to all cows.

TABLE 1. Rate at Which Concentrates Were Eaten

Concentrate	Parlor fed(1) min./lb.	Stanchion fed(2) min./lb.
Meal	1.31	3.15
Pellets	1.07	2.50
Cubes	...	1.87

Milk production by cows fed pelleted concentrates in comparison to those fed the same mixture as meal has been inconsistent (1, 2, 3). In three experiments, an increase (1), no change (2) and a decrease (3) in 4% FCM production were the responses associated with feeding pelleted concentrates. Average daily milk production for the three studies is given in Table 2. Several things which may be responsible for differences in response are breed of cows, roughage fed, concentrate ingredients, and temperatures and pressures during pelleting.

The effect of feeding pelleted concentrates on butterfat percentage in milk, as on milk production, has not been uniform. Feeding an all pelleted ration resulted in a drop in butterfat percentage from 3-3.2% down to 2.4% (4). Some of the decrease in fat percentage probably was due to the grinding of the roughage. Under usual feeding and management conditions, however, the change in butterfat percentage associated with feeding pelleted concentrates has been less and ranged from a 0.2% decrease (1) to a 0.1% increase (2), (Table 3). The average butterfat percentage in milk from cows fed meal was 4.2%, compared with 4.1% for those fed unpelleted concentrates.

EDITOR'S NOTE: The accompanying article is from a paper presented at the third annual Alabama Nutrition Conference at Auburn, Ala. Dr. George E. Hawkins is a dairy husbandman at Alabama Polytechnic Institute, Auburn.

TABLE 2. Average Daily 4% FCM

Study	4% FCM	
	Meal	Pellets
I	46.1	48.2
II	26.1	26.5
III	32.6	32.3
IV	38.1	37.4
Means	35.7	36.1

TABLE 3. Butterfat Percentage in Milk as Related to Type of Concentrate Fed

Study	% Butterfat	
	Meal	Pellets
I	4.1	3.9
II	4.8	4.9
III	4.0	3.9
IV	3.9	3.8
Means	4.2	4.1

SUMMARY: Concentrates fed in the pelleted form were consumed more rapidly by dairy cows than the same concentrate mixture in the non-pelleted form. The average daily milk production of cows fed pelleted concentrates was similar to that of cows fed the non-pelleted concentrate. However, in three out of four studies there was a slight drop in butterfat percentage of milk when cows were changed from non-pelleted to pelleted concentrates. The slight reduction in butterfat percentage of milk probably resulted from changes in rumen metabolism associated with the heat treatment of the concentrates during pelleting.

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3. Hawkins, George E.—Value of Pelleted Concentrates for Dairy Cows; Alabama Agri. Expt. Sta., Highlights Agr. Res. Vol. 6, No. 4 (in press), 1959.
3. Adams, H. P., and Ward, R. E.—The Value of Pelleting the Concentrate Part of the Ration for Lactating Cattle; J. Dairy Sci., 39:1448-1453, 1956.
4. Powell, E. B.—One Cause of Fat Variation in Milk; Proc. Am. Soc. Animal Prod., Annual Meeting, 31:40-47, 1938.

Closes Flour Mill

PORTLAND, ORE.—Centennial Mills, Inc., has decided to close a flour milling facility in Milton-Freewater, Ore., according to an announcement by Moritz Milburn, president of Centennial.

Decision to close the plant, which has a capacity of 2,800 cwt., basis 24 hours' running, was made with "considerable reluctance," said Mr. Milburn.

Establishment of a flour milling facility in California is being considered, Mr. Milburn said. Production at the firm's three remaining mills is being stepped up, he added.

CocciVac®
MAKES THE DIFFERENCE!

Yes, CocciVac® can mean the difference between full-time and part-time egg production. For CocciVac, a coccidiosis vaccine, gives replacement flocks early and LASTING immunity to the disease . . . immunity which continues all through the laying cycle. And that means early and LASTING protection against coccidiosis outbreaks slowing down or stopping full-time egg production.

And ONLY CocciVac provides this lasting immunity. For lasting immunity requires exposure and control and ONLY the CocciVac Vaccination program assures both!

This program teams CocciVac with a recommended coccidiostat, such as Trithiadol® . . . gives chicks a measured, controlled infection and protects them while immunity is developing.

Yet this CocciVac-Trithiadol program takes only 6 weeks and saves you on an average of $7.50 per 1000 birds over the use of a coccidiostat alone.

Don't let coccidiosis slow down or stop your egg production . . . VACCINATE with CocciVac and give your layers EARLY AND LASTING IMMUNITY.

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SUBSIDIARY OF STERLING DRUG INC.
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Dorn and Mitchell Vaccines Are Also Sold By
STERWIN CHEMICALS INC., 1450 Broadway, New York 18, N. Y.

PROTECTED BIRDS MEAN PROTECTED PROFITS
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YOUR BEST PROTECTION AGAINST
COCCIDIOSIS IS THE CocciVac PROGRAM!
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Please send me the full story, including prices, on CocciVac.

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MANUFACTURER ☐ DEALER ☐

Fleischmann's F·I·D·Y
IRRADIATED DRY YEAST
RICH IN VITAMIN D FOR YOUR FOOTED ANIMALS

Up Go Sales and Profits When You Sell

GRAN-I-GRIT'S

NEW GRIT FEEDING PROGRAM

Broiler Growers and Egg Producers can make More Money from feed Without Adding One Cent to that Cost!

Made $31.00 MORE PROFIT Per 1000 Broilers

Mr. Gurney C. Hodges, top broiler grower of Low Gap, North Carolina, states, "I tested GRAN-I-GRIT'S New Grit Feeding Program on 4,000 broilers, feeding the larger sizes of GRAN-I-GRIT as recommended. I made $127.50 more with these 4,000 broilers than I did with 4,000 broilers, raised at the same time, to which I did not feed the larger sizes of grit. I feel sure that the larger sizes of grit were responsible for this outstanding result."

With today's low profit margins it is EXTREMELY IMPORTANT that both Broiler Growers and Egg Producers take advantage of new methods of operation that will increase their profits.

It is just as important that you as a feed manufacturer, jobber or dealer, know about new methods that will increase the profits from your feed.

Daily results from GRAN-I-GRIT'S New Grit Feeding Program are proving that both Broiler Growers and Egg Producers, by getting full feed utilization, are making more money through feeding larger sizes of grit.

GRAN-I-GRIT RESEARCH FIRST PIONEERED and PROVED that Feeding Larger Sizes of GRIT WOULD INCREASE PROFITS

GRAN-I-GRIT Research Proved that larger sizes of grit, instead of passing through the digestive tract like small grit, stays and works in the gizzard.

Larger sizes of grit not only grind feed finer and more efficiently in the gizzard, but keep the digestive tract open for full feed utilization by completely grinding feathers and fibrous litter that all birds will eat.

By informing your customers of GRAN-I-GRIT'S New Grit Feeding Program you can show them HOW TO MAKE MORE MONEY FROM YOUR FEED, which in turn will stimulate your sales and profits.

Get Full Details

GRAN-I-GRIT'S *New* Grit Feeding Program

We have a new GRAN-I-GRIT circular that gives full details of the new GRAN-I-GRIT program of feeding larger sizes of grit . . . the program that is proving so successful with both Broiler Growers and Egg Producers. Write today for a free copy.

Top poultrymen use GRAN-I-GRIT. They know from experience that GRAN-I-GRIT is the best profit producing grit they can use. GRAN-I-GRIT is insoluble . . . does not dissolve and cannot change the mineral balance of your feed.

GRAN-I-GRIT is packed in 10 lb. Easy to Stock, Self Feeding Packs that save valuable storage space, time and labor and in 25, 50 and 80 lb. multiwall paper bags.

GRAN-I-GRIT *IS BEST WITH Eye Appeal*

Selected By Birds

20 to One Over Other TYPES OF GRIT

Chicks, broilers, pullets or layers must consume the proper amount of grit to get maximum results from feed and GRIT MUST HAVE EYE APPEAL before poultry will eat it. Side by side tests on poultry farms and by leading poultry authorities have proven that poultry of all ages prefer a light gray grit with black specks . . . the GRAN-I-GRIT TYPE . . . (as much as ten, fifteen, twenty to one) over grit of other colors.

NORTH CAROLINA GRANITE CORP. Mount Airy, North Carolina

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THE GRIT WITH THE SHARPEST GRINDING EDGES EVER CUT

BIG CHIEF
Pit Augers • Elevator Legs • Mixers • Scalpers •
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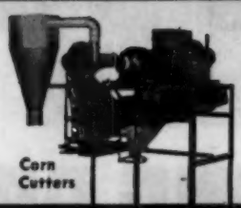
Corn Cutters

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MANUFACTURERS OF QUALITY MILLING EQUIPMENT SINCE 1930

Annual Meeting of PENB to Center on Markets, Stability

CHICAGO — Ways in which the poultry industry can help itself stabilize and improve markets in 1960 will be the basis for the 20th annual meeting of the Poultry & Egg National Board at Chicago's La Salle Hotel April 12-13, according to Lloyd H. Geil, PENB general manager.

The program committee is headed by Ralph J. Thomas, PENB president, assisted by Dr. L. A. Wilhelm and Howard Kauffman, both PENB directors, and the PENB staff. The theme for the meeting is "Signals for the Golden '60's."

Mr. Thomas will open the discussion April 12 with the subject, "Blueprint for Your Future in the Poultry Industry." This will be followed by a discussion on "How PENB is Gearing Its Program for the Changing, Competitive Market," by Mr. Geil.

The April 12 program will also include a presentation on PENB's research testing and recipe development services. R. H. Hendrickson, General Mills, Inc., will give an address on "Are New Products the Answer to Increased Sales and Profits?" He is chairman of the steering committee of PENB's new product development group.

Other features on April 12, designated "membership day," will include a talk by Carl F. Neuman, general manager, National Livestock & Meat Board, on "Getting to Know Your Competitor," and a session for members to air their viewpoints on strengthening membership and promotion policies established by the board of directors.

At the close of the first day, the new slate of directors for 1960-61 will be announced by the nominating committee. Old and new board members will hold a special dinner and board meeting immediately following the election.

Feed Man to Speak

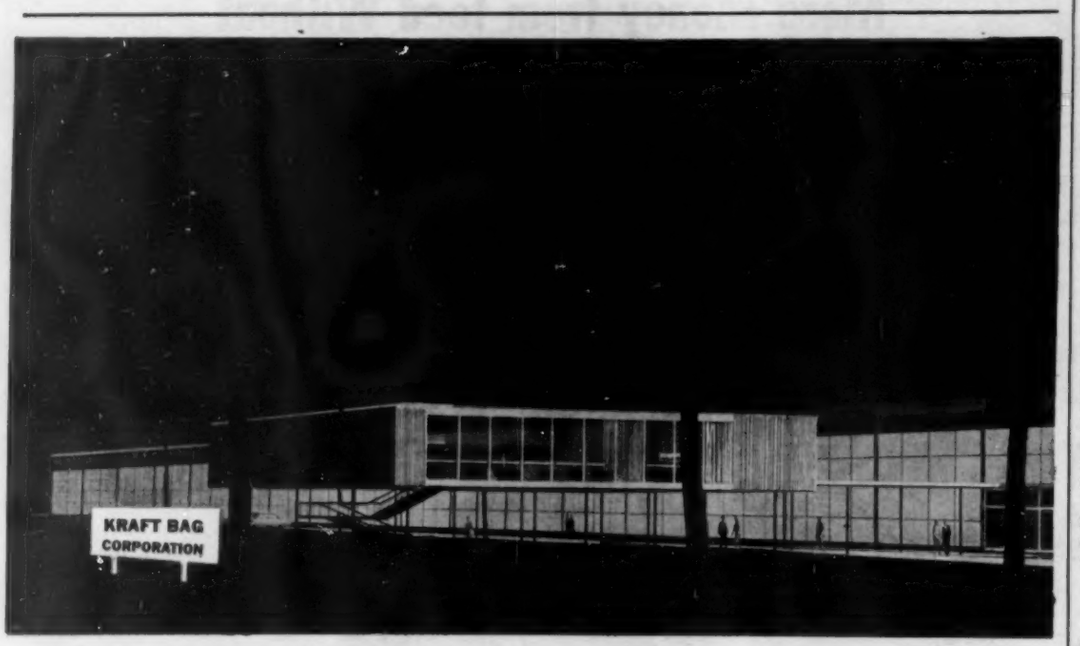
Opening the program the second day will be Dr. Kenneth Laurant, general manager, Marbut Milling Co., who will discuss, "What Puts Food on Family Tables?" Other feature topics include: "Trends in Media Use of Food Information," and "Trends in School Use of Food Information from Industry." Dr. L. G. Maison, president, L. G. Maison Co., advertising agency, will give a presentation on "Insight and a Solution to the Cholesterol Problem."

At the closing luncheon on April 13, the winner of PENB's Research Achievement Award will be announced. This is an annual honor going to a scientist who has distinguished himself in poultry research. Other recognitions will be given to industry leaders who have made noteworthy contributions to the progress of PENB and the industry's promotion program during the past year.

April 11 has been set aside for meetings of the executive committee and the various commodity committees.

FEED STORE OPENS

HARRISON, ARK. — Pete's Feed Store, a new Ralston Purina outlet, has been opened here by Pete Purcelli. Mr. Purcelli said the store, which has approximately 5,000 sq. ft. of floor space, will have a complete line of sacked and bulk feeds and grains.



"It wasn't there last year!"

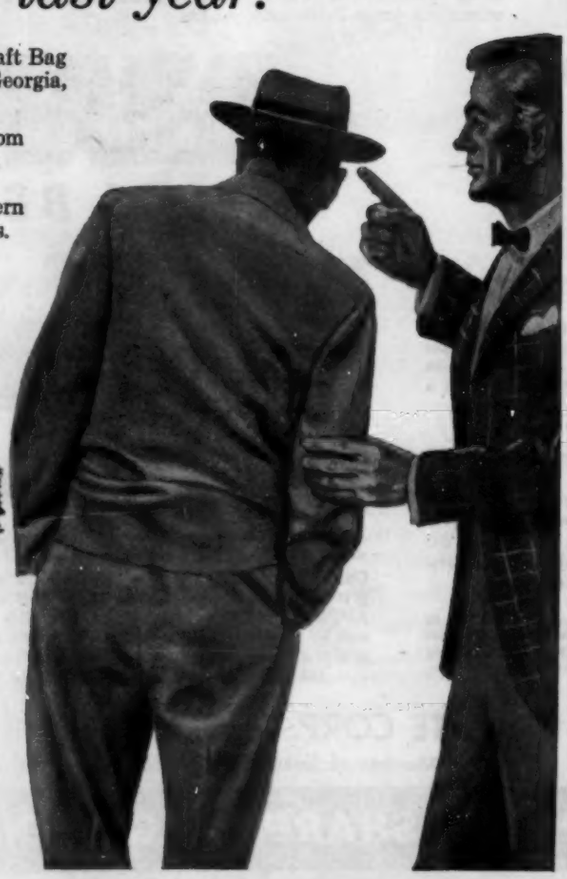
This is the new 300,000 sq. ft. addition to Kraft Bag Corporation's converting plant at St. Marys, Georgia, scheduled to go "on stream" in February.

Here, in one giant integrated operation, logs from our own forest lands are turned into pulp, then into paper, and finally into heavy duty multiwall shipping sacks, using the most modern machinery and equipment the industry affords.

This expansion of our facilities is one more step in our constant efforts to provide our customers with the best in quality and service.

We invite your inquiries.

Paper Mill at St. Marys, Ga.



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CALF-PAB
MILK REPLACER
Nectarized
FOR GREATER PALATABILITY
Smells Better
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WRITE TODAY
for new "NECTARIZED" Calf-Pab Sales Aids, New Nectarized Pablets and Calf Meal

Blatchford's
ESTABLISHED IN 1906

Butler

POLLYPHOS

The strategic geographical location of Butler Chemical Company allows them to furnish feed and mineral manufacturers a defluorinated phosphate . . . POLLYPHOS . . . at a low, low delivered cost per unit of phosphorus. This is especially true for those manufacturers located in the western half of the United States.

BUTLER POLLYPHOS has an all time high phosphorus content of 19% with a minimum 32% — maximum 35% calcium and no more than 0.19% fluorine.

BUTLER POLLYPHOS can be obtained in 100 lb. multi-wall bags, in bulk, or in truck or carload lots.

Phone, wire or write us or your nearest Butler Sales Agent for delivered prices of BUTLER POLLYPHOS to your plant.

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Sales Division: 1230 Esperson Building
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ANNOUNCING...
a major breakthrough

Exciting new medication concept can give you an important new business tool for more hog feed tonnage

Every feed man now has a research-proven way to add previously impossible performance to hog feeds . . . performance that will build new customers and added volume *fast.*

Briefly, the new breakthrough is a 21-day sow feeding idea that helps protect baby pigs from scours, saves more pigs, and gives heavier weaning weights.

Key to the plan is well-known nf-180 (brand of furazolidone), already widely accepted as a swift, effective scours treatment for hogs of all ages . . . even where commonly used drugs have failed regularly. Now this new idea makes it possible to *treat* the sow and thereby *protect* the baby pigs. All it involves is fortifying the normal sow ration with 150 grams of furazolidone per ton of total ration for one week before and two weeks after farrowing.

Why it works

Even top-notch management and sanitation practices often fail to protect baby pigs against enteritis troubles. Visible signs of troubles are obvious scouring and death losses. Less noticeable (but probably more costly) is the way these intestinal troubles hamper the process of converting feed into pork. Too often the blame is improperly placed on the feed, instead of where it belongs . . . on hidden disease drag which causes slow, costly gains.

Now the new nf-180 "treat the sow to protect the pigs" feeding plan attacks the problem where it starts . . . inside the sow.

"Missing link" is internal sanitation

The "missing link" in sanitation programs is the sow herself. The minute she walks into the farrowing pen, she can spread scours organisms in spite of the strict sanitation precautions you have used. The disinfecting, cleaning, and washing can be undone because the sow carries scours and enteritis organisms inside her body. Within hours, these bacteria in her intestinal tract can be turned loose in the pen through the droppings.

Only some method of internal sanitation can solve the problem . . . break the vicious scours infection cycle.

Major sanitation breakthrough

Now, after more than three years of college and farm research, a way to achieve internal sanitation for sows has been mapped out and proven. It is simple . . . economical . . . surprisingly effective.

With this new plan, you can produce sow feeds which close the critical gap in swine sanitation which has plagued every hog raiser. A sow ration containing 150 grams of furazolidone per ton of total ration, fed one week before and two weeks after farrowing, makes it unlikely that sows will pass on (through droppings) the disease organisms which swiftly attack baby pigs. These are the bacteria which cause scours, enteritis

nf-180 sow feeding is the final link in your swine sanitation program

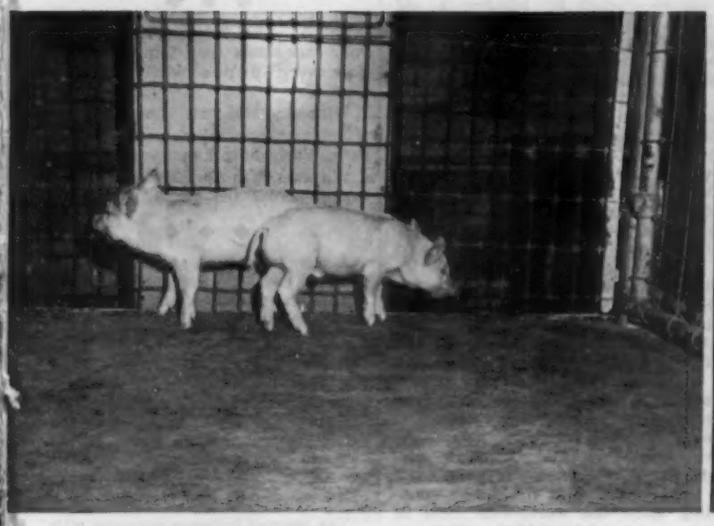
CLEAN PENS . . . at least two weeks before farrowing dates.

DISINFECT . . . thoroughly to kill bacteria and parasites.

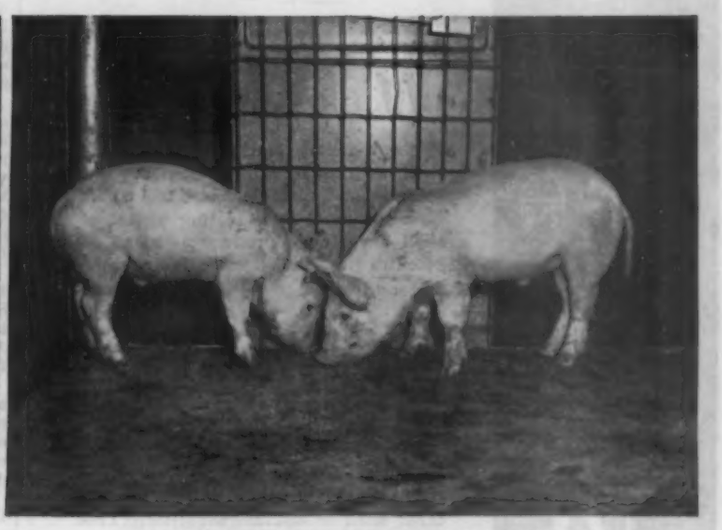
WASH SOW . . . with warm soapsuds before putting in pen.

FEED NF-180 . . . one week before, two weeks after farrowing.

in sow feeding for the Sixties!



Pigs from sows fed nf-180 averaged two pounds heavier than pigs from unmedicated sows at 3 weeks of age.



By eighth week, pigs from sows fed according to this new nf-180 plan weighed nearly eight pounds more.

troubles, unthriftiness, and unprofitable gains which are too often wrongly blamed on the feed.

Disease-free pigs?

No, this new nf-180 sow ration does not assure disease-free pigs. For example, nf-180 is not known to be effective against transmissible gastro-enteritis (T.G.E.) . . . nor is any other available drug. But nf-180 will provide the best bacterial scours protection available today.

As a result, the nf-180 sow ration makes it possible for you to offer hog men a better way . . . a totally new way . . . to get better performance from the feed you sell them. They'll welcome the saving of more pigs, the faster gains, thriftier gains, huskier pigs at weaning time, and freedom from scours losses. And you'll like the way it takes *much of the risk out of hog feed financing.*

Potent sales clincher

This new nf-180 "treat the sow to protect the pigs" plan can be a potent sales story for you this year. Use it to gain new dollar volume and new customers. We will provide consumer promotional materials for your salesmen . . . technical data and test results for you to study. Get the full story . . . then cash in on this major breakthrough in pork production! Write us today.

HESS & CLARK
Division of Vick Chemical Co.
Ashland, Ohio

nf-180®
brand of
furazolidone

Convenient nf-180 pre-mix

If you're a feed dealer, you'll especially like the convenience of nf-180 Custom Mix Ten for mixing the new nf-180 sow ration. Custom Mix Ten (containing 10 grams furazolidone per pound) simplifies your mixing and measuring jobs . . . ideal for individual orders. Fifteen pounds provides enough of the active drug furazolidone to properly medicate one ton of sow feed.

nf-180 Concentrate for feed manufacturers

Three pounds of nf-180 Concentrate furnishes the necessary 150 grams of furazolidone needed for the sow ration described on these pages. Use nf-180 Concentrate for mixing big tonnages where precision equipment is available . . . works equally well in pellets or meal.

Complete college test results

Full data on several college tests and actual field feeding trials are available in a special report prepared for feed manufacturers and dealers. Write, wire, or call today for your copy.

NT-6-1

SHELL!

The most digestible calcium product on the market is EGGSHELL BRAND Oyster Shell. This heat-sterilized soft, reef shell is highly palatable to hens . . . goes to work turning out sturdy egg shells in less than 6 hours after consumption. Tests show it makes stronger egg shells.

SWELL!

High-producing layers need as much shell as they'll eat. That's why we recommend palatable, soft, reef shell. Even ordinary hens eating 4 lbs. of shell a year can produce as many as 24 extra fine-shelled eggs. Poultrymen prefer them because hens prefer them.

SELL!

There's only one best-seller in the Northeast, and that's EGGSHELL BRAND Oyster Shell. It outsells any other shell or calcium substitute. This sales leader is promoted in the trade publications and backed by merchandising aids that really do the job.

"Egg Shell Quality Begins With EGGSHELL BRAND"

EGGSHELL BRAND OYSTER SHELL
a product of
OYSTER SHELL CORPORATION
BALTIMORE, MARYLAND

★ Buy and Sell Through WANT ADS ★

Disease Caused by Inhaling Soil Fungus Still Baffles Doctors

PHILADELPHIA—Histoplasmosis, an ailment most prevalent in the Mississippi, Ohio and Missouri river valleys, is an ailment which has mystified doctors by masquerading as tuberculosis and a number of other common infections, according to the Saturday Evening Post.

In an article entitled "The Disease That Fooled X-Rays," Constance B. Gilleo says that this noncontagious disease—caused by inhaling a soil fungus which often thrives in chicken houses—is one of the strangest and most misunderstood ailments in U.S. medical annals.

She relates that it had been relegated to the limbo of rare, deadly, tropical infections, until research begun in the mid-1940's at Vanderbilt University identified it as a disease native to large areas of the U.S. in forms which may be imperceptibly mild, moderately severe or rapidly fatal.

It is reported that Dr. Clayton G. Loosli, dean of the University of Southern California Medical School, has estimated that the number of Americans currently infected by this fungus may run as high as 30 million.

Most of these, the Post article says, are harmless infections which may go unnoticed. Nevertheless, it adds, experts estimate that severe cases probably kill from several hundred to 1,000 Americans yearly.

The writer finds this figure startling since the world-wide total of cases reported from 1906 to 1945 was only 75.

Most doctors, it is said, have wondered how this common infection could have remained concealed so long in the medically-advanced U.S. However, one estimate has it that two-thirds or more of the thousands of histo infections that occur yearly are symptomless and harmless—though even such "silent" cases often scar the lungs.

The Post report says that histoplasmosis not only imitates tuberculosis, but has also appeared in the guise of chest colds, influenza, virus pneumonia, pneumonitis, meningitis, typhoid and, rarely, cancer. Occasionally it causes severe ulcerations in the mouth, intestines or genitals.

It is reported that Amphotericin B, Squibb's antifungal agent and the sulfonamides are the most effective weapons against histo at this date.

Hear about the woman who calls her husband "Hydromatic" because he's shiftless?

◆ ◆ ◆

Police court judge: "Young man, your face looks very familiar. Have you ever been convicted by this court?"

Witness: "No, your Honor!"

Judge: "Remember, you're under oath. Where have I seen you before?"

Witness: "I'm the bartender in the saloon across the street."

◆ ◆ ◆

A woman waiting at the door and ready to go to the store had her arms full of coats. Her four small children surrounded her.

The husband came down the stairs and demanded to know why she was standing in the entry.

"Well, Fred," she replied sweetly, "this time I want you to put the children's coats on. I'll go out to the car and honk the horn."

◆ ◆ ◆

The quarrel between man and wife ended when the little woman burst into tears. "How can you say such things after I've given you six of the best years of my life," she sobbed.

"Good heavens!" exclaimed her husband. "Were those your best?"

◆ ◆ ◆

The popularity of the automatic dishwasher is due to the fact most husbands would rather buy one than be one.

◆ ◆ ◆

Sonny boy: "Mama, daddy wouldn' murder anybody, would he?"

Mother: "Why certainly not, sonny, what makes you think he would?"

S. B.: "Well, I just heard him down in the cellar saying, 'Let's kill the other two, George'."

◆ ◆ ◆

After what seemed like hours a white-robed doctor emerged from the examination room and addressed himself to Mr. Smith.

"Mr. Smith, your wife has quinsy."

"My gosh," said Smith, before he fainted, "that makes 15."

GIVE YOUR FERTILIZER CUSTOMERS WHAT They WANT

. . . A GUARANTEED EVEN, ACCURATE SPREAD — FULL WIDTH, NO SKIPS

SPREAD IS CHECKED THE FULL WIDTH BY ACTUAL WEIGHT

The Simonsen spreader is not an adaptation of a lime spreader. It is designed to spread high analysis fertilizers accurately and evenly, down to 75 lbs. per acre. Superb performance results in positive customer satisfaction, and unequalled maintenance-free operation. Leasing plans available.

GET THE TROUBLE-FREE FEATURES *YOU* WANT

- Non-Corroding stainless steel at all critical points—apron, metering gate and guides, take-up bolts, drive chains.
- All-weather wheel drive assembly.
- Hydraulic fan drive.
- Outside compartment door hinges.
- Simple adjustment for spreading rate.
- Rubber shock absorbers on hoods.

WRITE, WIRE OR PHONE COLLECT

for further information about the R710, plus a full line of other Simonsen bulk fertilizer bodies and the new Simonsen Feediliser (a dual-purpose bulk feed and bulk fertilizer body).

SIMONSEN ALSO MAKES A FULL LINE OF, BULK FEED BODIES, COMBINATION BULK FEED AND SACK BODIES, AND UNLOADERS TO FIT YOUR PRESENT TRUCK BODY.

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SIMONSEN MANUFACTURING CO.
DEPT. FS QUIMBY, IOWA PHONE 72

Calves Weaned QUICKER

... with seagram solubles

Next to cows milk Seagram Solubles are the best substitute . . . compare nutritionally with dried skim milk. Tests at leading colleges and agricultural stations prove that by adding Seagram Solubles to rations dairymen can wean calves far less expensively. The reasons for this are because Seagram Solubles are rich in proteins, minerals and all of the important B-vitamins, plus dynamic grain fermentation growth factors which are a result of the yeast fermentation process.

Give your customers the best — vitalize your feeds with this powerful feed supplement.

JOSEPH E. SEAGRAM & SONS, INC.
Grain Products Division
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Seagram SERVICE TO AGRICULTURE

National Broiler Meeting Plans Set

RICHMOND, VA. — Outstanding experts in the fields of market research, nutrition, sales and merchandising will highlight the second annual Broiler Industry Conference to be held March 23 by the National Broiler Council at the Dinkler-Plaza in Atlanta.

The 1960 meeting will again emphasize the importance of making chicken the food of the future. Keynoter will be Don Corbett, Waterville, Me., national council president, who will outline the current situation in the industry and project the problems and opportunities which lie ahead.

The value of market research in determining consumer acceptance, buying and eating habits will be the subject of a talk by S. A. Roberts, Jr., market research director, Pet Milk Co., St. Louis. Ralph Fields, director of consumer sales promotion and merchandising, Reynolds Sales Co., Richmond, will discuss how to sell advertising and merchandising.

Trends in nutrition, how they are affecting the consumer and the opportunities they offer broiler producers and processors, will be projected by Dr. Elizabeth Neige Todhunter, dean of home economics at the University of Alabama and former president of the American Dietetics Assn.

"What's New in Food Marketing" —particularly in the area of new products and their impact on food distribution—will be presented by Frank M. Atchley, agricultural consultant for the Grocery Manufacturers of America, New York, while the outlook for broilers in the large volume feeding field will be the subject of an address entitled "Chicken—Abused or Adored" by David J. Berge, executive vice president of the Brass Rail, New York.

At luncheon, a light-hearted talk, "Your Chicken House is on Fire!" will be given by Edmund H. Harding, the "Tar Heel Humorist" from Washington, N.C.

Rounding out the NBC program will be reports on the council's activities during the year by Harry Crawford, president, Crawford & Porter Advertising, Atlanta, and Barbara Hunter, Dudley - Anderson - Yutzy, New York, in the field of public relations.

Sales Appointment

DES MOINES — Don Heggen, Indianola, Iowa, has been appointed representative in western Iowa, Nebraska and South Dakota for Carroll Swanson Sales Co. The Swanson firm is sales agent and distributor of feed ingredients.

Mr. Heggen will replace Ed Murdock, Omaha, Neb., on Mr. Murdock's retirement. Mr. Murdock has served the territory for the past nine years.

Mr. Heggen has been a representative for Abbott Laboratories, North Chicago.

PACKERS MEETING SPEAKER — Joseph D. Martin, Balfour, Guthrie & Co., Ltd., Fresno, Cal., is shown addressing the Western States Meat Packers Assn. on hog raising in California. He told the group that the feed manufacturer's place is to provide a high protein supplement which the farmer who grows his grain and hay can mix on his own ranch (Feedstuffs, March 5).

Industrial Sales Head Named by A. E. Staley

DECATUR, ILL.—Wendell D. Ray has been named an industrial sales manager of A. E. Staley Manufacturing Co., according to L. E. Doxsie, manager of the corn division.

Wendell D. Ray

Mr. Ray, a graduate of Indiana University, joined the firm in 1950 as a price and market analyst in industrial sales. He became a senior industrial salesman in 1952. For the past two years he has been branch manager of the company's Boston office.

Mr. Doxsie also announced that George M. Donelan, who has been assistant manager of the company's Cleveland office for the past three years, will succeed Mr. Ray as manager at Boston. Mr. Donelan joined the company in 1951 as a senior industrial salesman. He graduated from Boston College.

Khapra Beetle Found In Asian Guar Meal

STOCKTON, CAL.—Fumigation of all future shipments has been ordered as a result of discovery of Khapra beetle, a dangerous grain pest, in a recent cargo of guar meal from Asia received at the Port of Stockton, Cal.

The shipment, consigned from Karachi, Pakistan, was destined for use as livestock feed, according to Austen E. Mahoney, county agricultural commissioner.

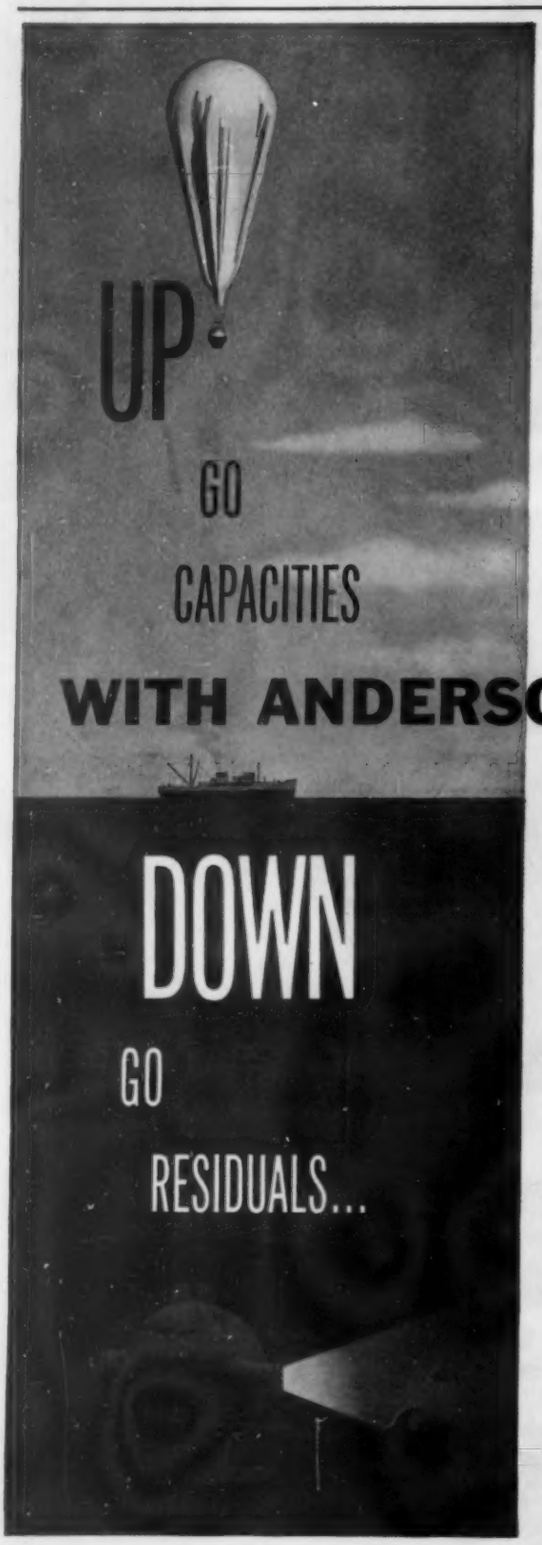
Methyl bromide was used to destroy the pest. It was the second such discovery in three years. A similar shipment of grain feed received in May, 1957, contained larvae of the beetle, according to Mr. Mahoney.

Fire Hits Omaha Mill

OMAHA — Fire swept a two-story Swift & Co. feed mill here early March 5. The cause has not been determined.

Firemen battled the fire in 14-below-zero weather which froze water as it struck the wooden structure.

George Miller, assistant plant superintendent, said the fire apparently broke out on the second story where feed for about 5,000 lambs and 1,000 cattle was stored. Alfalfa, hay, sorghum and oats were also stored in the building.



When using a modern, high speed Anderson Expeller the capacity to process oleaginous materials goes up. This rugged machine can press twice the capacity of any single conventional press. You save 50% on press equipment investment while lowering operating costs, cutting maintenance and supervisory time. But that's only half the story!

Using this high capacity process, the Anderson Expeller produces a prime quality cake of extremely low residual oil content . . . as low as 2.5% on cottonseed processing 51 tons a day; 3.2% on peanuts processing 50 tons per day; and 5% on sesame processing 25 tons per day.

Write for bulletin describing remarkable results like these on 14 different oil bearing materials.
The V. D. Anderson Company,
division of International Basic Economy Corporation, 1944 West 96th Street, Cleveland 2, Ohio.

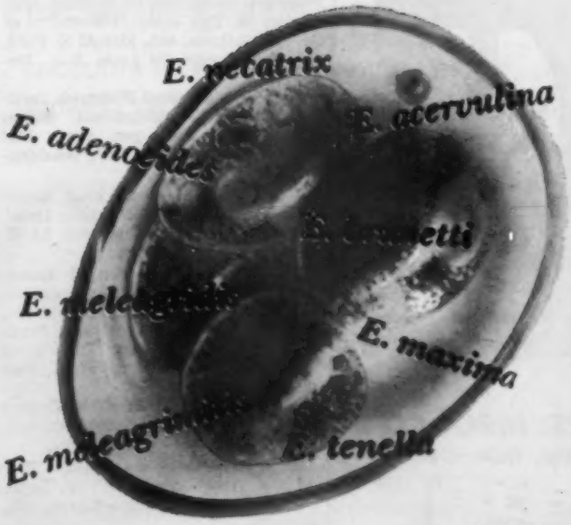
*Trade Mark Reg. in U.S. Pat. Off.

ANDERSON

Only Anderson Makes Expellers!

When other drugs fail against coxy breaks...

S.Q.



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No other drug can match the effectiveness, safety, and economy of S.Q. in treating outbreaks of coccidiosis in chicks, poults, pullets—*and* birds in production. Unlike other drugs, S.Q. works best during the all-important 72- to 96-hour period after infection, when coccidia are most vulnerable to medication.

S.Q.—used promptly at therapeutic levels—will check coxy outbreaks . . . cut losses by holding mortality and stunting to a minimum . . . keep flocks on feed until the outbreak is under control.

Merck Chemical Division, Merck & Co., Inc., Rahway, N. J.

S.Q.® *with* THE MERCK MARGIN OF SURETY

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Convention Calendar

March 23—Distillers Feed Conference; Sheraton Gibson Hotel, Cincinnati; sponsored by Distillers Feed Research Council; exec. director, Dr. Lawrence E. Carpenter, 1232 Enquirer Bldg., Cincinnati, Ohio.

March 23-24—National Broiler Industry Conference; Dinkler-Plaza Hotel, Atlanta, Ga.; vice pres., Frank Frazier, P.O. Box 368, Richmond, Va.

March 27-29 — Colorado Grain, Milling & Feed Dealers Assn.; Shirley-Savoy Hotel, Denver; sec., O. W. Eriksen, 519 Boston Bldg., Denver 2.

March 29—New Jersey Poultry Nutrition Institute; Rutgers University, New Brunswick, N.J.; R. L. Squibb, chairman, Poultry Science Department.

March 31-April 2—Pacific Dairy & Poultry Assn. Exposition and Convention; Stardust Hotel, Las Vegas, Nev.; association office, 1304 E. 7th St., Los Angeles 21, Cal.

CALENDAR FOR 1960-61

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April 1-2 — Texas Grain & Feed Assn., Shamrock Hotel, Houston; sec., Ray B. Bowden, 407 Fort Worth Club Bldg., Ft. Worth, Texas.

April 5-7—Nebraska Grain & Feed Dealers Assn.; Pershing Municipal Auditorium, Lincoln; sec., Howard W. Elm, Trust Bldg., Lincoln, Neb.

April 6—Purdue Egg Day; Purdue Memorial Center, Fowler Hall, Purdue University, Lafayette, Ind.; David D. Jackson, Extension Poultryman.

April 10—Informal Poultry Nutrition Conference; Chicago, Ill.; Dr. M. L. Sunde, Poultry Department, University of Wisconsin, Madison.

April 10—Informal Poultry Nutrition Conference; Waldorf Ballroom, Conrad Hilton Hotel, Chicago; Edward C. Naber, Poultry Science Dept., Ohio State University, Columbus 10.

April 11-13 — Poultry and Egg National Board, LaSalle Hotel, Chicago, Ill.; mgr., Floyd Geil, 8 S. Michigan Ave., Chicago 13, Ill.

April 11-15—Federation of American Societies for Experimental Biology; Waldorf Ballroom, Conrad Hilton Hotel, Chicago; Edward C. Naber, Poultry Science Dept., Ohio State University, Columbus 10.

April 17-19—Animal Health Institute; Shoreham Hotel, Washington, D. C.; sec., D. L. Bruner, 512 Shops Bldg., Des Moines 9, Iowa.

April 21—New England Dairy Feed Conference; Hotel Lenox, Boston, Mass.; chm., Dr. Stanley N. Gaunt, Dairy and Animal Science Dept., College of Agriculture, University of Massachusetts, Amherst.

April 21-23—Florida Beef Cattle Breeders and Herdsmens Short Course; University of Florida Livestock Pavilion, Gainesville; Dr. T. H. Cunha, Animal Husbandry Dept.

April 22—Indiana Cattle Feeders Day; Purdue University, Lafayette, Ind.; chm., Dr. W. M. Beeson, Animal Science Dept.

April 21-23—California Hay, Grain & Feed Dealers Assn.; Ambassador Hotel, Los Angeles; sec., John Gilmore, Blue Anchor Bldg., 1400 10th St., Sacramento 14, Cal.

April 21-23—Kansas Grain & Feed Dealers Assn.; Broadview Hotel, Wichita, Kansas; sec., Orris E. Case, 609 Wiley Bldg., Hutchinson, Kansas.

April 22 — Nebraska Livestock Feeders Day; University of Nebraska, College of Agriculture, Lincoln; chm., Wm. J. Loeffel, Animal Husbandry Dept., Lincoln 3, Neb.

April 24-28—Business Management Program, sponsored by Southeastern Poultry & Egg Assn., University of Georgia, Athens; sec., Harold E. Ford, 235 East Ponce De Leon Ave., Decatur.

May 1-4—National Fisheries Institute; Hotel Fontainebleau, Miami Beach, Fla.; asst. gen. mgr., Mal Xavier, 1614 20th St. N.W., Washington 9, D.C.

May 9-11 — American Feed Manufacturers Assn.; Conrad Hilton Hotel, Chicago; sec., W. T. Diamond, 53 W. Jackson Blvd., Chicago 4, Ill.

May 9-11 — Association of American Feed Control Officials; Sheraton-Blackstone Hotel, Chicago; sec., Bruce Poundstone, Feed and Fertilizer Dept., Agricultural Experiment Station Bldg., University of Kentucky, Lexington.

May 11—South Carolina Poultry Festival; Batesburg-Leesville, S.C.; sec., W. E. Sanders, Batesburg.

May 15-16—Missouri Grain & Feed Assn.; Hotel Governor, Jefferson City; sec., D. A. Meinershagen, Higginsville.

May 15-17 — National Cottonseed Products Assn.; Roosevelt Hotel, New Orleans, La.; sec., John F. Moloney, Box 5736, Memphis 4, Tenn.

May 23-27 — Southeastern Egg

New Listings

For the convenience of readers who scan the Convention Calendar regularly for new listings, those added to the column in the current week appear separately from ones which have been entered previously. The following week they will be moved to their proper slot where they will remain until the event is held.

June 6-7 — Central Retail Feed Assn.; Schroeder Hotel, Milwaukee, Wis.; sec., Eldon Roesler, 1712 W. St. Paul Ave., Milwaukee.

June 9 — Ohio Beef Cattle Day; Ohio Agricultural Experiment Station, Northwestern Substation, Hoytville.

June 16-18—Canadian Feed Manufacturers Assn.; Jasper Park, Alberta, Canada; chm., R. Hill, P. O. Box 39, Edmonton, Alberta.

July 29 — Ohio Sheep Day; Ohio Agricultural Experiment Station, Wooster.

August 12—Ohio Dairy Day; Ohio Agricultural Experiment Station, Wooster.

August 19—Ohio Swine Day; Ohio Agricultural Experiment Station, Wooster.

Oct. 17-18—California Animal Industry Conference; Fresno Memorial Auditorium, Fresno, Cal.; co-sponsored by California Hay, Grain & Feed Dealers Assn. and University of California; chm., Bert Maxwell, Nulaid Farmers Assn., Petaluma; association office, 1400 Tenth St., Sacramento 14.

1961

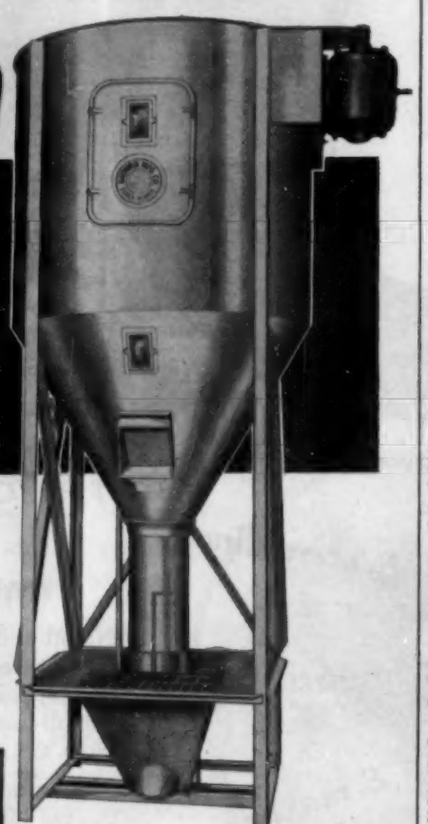
Feb. 8-9—Pacific Northwest Feed Mill Production School; Hotel Leopold, Bellingham, Wash.; sponsored by Washington State Feed Assn.; mgr., John G. Wilson, 814 Second Ave. Bldg., Seattle 4.

Feb. 10 — Washington State Feed Assn., annual convention; Hotel Leopold, Bellingham, Wash.; mgr., John G. Wilson, 814 Second Ave. Bldg., Seattle 4.

"We saved a fat $300.. increased profits 20% with our BROWER MIXER

Says Harry D. Heist, President, A & C Feed Co., Cheyenne, Wyoming

"We bought a Brower because it ran about $300 less than similar mixers. As far as we can see after a year's hard run, we were right. It does a good job and gives no trouble; we saved a fat $300. We've increased our feed profits about 20% and are serving about 10 to 15% more customers."



BROWER Whirlwind MIXER

Dependability, fast mixing action, and low cost operation make Brower the WORLD'S LARGEST SELLING MIXER! Brower action WHIRLS the ingredients instead of just stirring or tumbling them . . . produces the most thorough mix obtainable. Every sack has the same even mixture.

FAST and ECONOMICAL — a perfect blend in about 10 minutes at a power cost of only 3¢ to 5¢ a ton. Five sizes — 700, 1200, 2000, 3000 and 4000 pounds-per-batch mixing capacities. Above-floor and below-floor models. Heavy welded steel construction — built for years of trouble-free service.

Easy to get into through large hinged service door and hinged conveyor sleeve.

Note mixing paddle at top which WHIRLS the ingredients for the most thorough mix.

Glass observation window at eye level provides easy inspection of feed being mixed.

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402 N. 3rd, Quincy, Ill.

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PACO is the superior Molasses Distillers Dried Solubles — nutritionally sound, palatable to stock and just about the *best pellet binder* you can buy! Paco is the ideal fortifier to add to your feed formula, provides balanced protein, B-vitamins, essential minerals plus unidentified growth factors. Compare 'em all—you'll choose Paco!

NATICO is the richest dry molasses product available! Add it to your feed for more profitable production and more *economical feeding costs.* Natico is an all sugar cane molasses product, adds attractive new color and fragrance to feeds . . . even makes dry home-grown grains and roughages tastier to livestock. Try Natico and watch feeding costs go down!

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- ☐ 2-lb.
- ☐ 10-lb.
- ☐ 50-lb.

☐ send Natico sample
- ☐ 2-oz.
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- ☐ 10-lb.
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PILOT BRAND helps poultry raisers get top production of stronger-shelled eggs.

PILOT BRAND is uniformly pure calcium carbonate, kiln-dried.

PILOT BRAND costs less per usable pound.

Powerful national advertising in leading farm and poultry publications and on 70 radio stations does a good job of pre-selling for you, and assures you repeat business.

Remember, there is no adequate substitute for PILOT BRAND Oyster Shell. It's a sure-fire volume and profit builder.

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Oyster Shell Products Company
Mobile, Alabama

"I can give you a carload of reasons why I stock Kasco® Meal!"

"Kasco moves out as fast as it rolls in. In the past two years I've moved over 280,000 lbs. (7 carloads) of Kasco Meal!

"Another thing. Kasco business is steady. Same folks been buying Kasco for years. Most of my new customers order it, too!"

Speaking is George B. Harvey, owner, Harvey's Feed Store, Rome, N. Y. Mr. Harvey sells and recommends Kasco because he knows it does the job.

One reason for this: Kasco's loaded with more than just promises. Kasco's high in protein (a guaranteed minimum of 25%). Kasco's high in animal fats (9% — one quarter more than any other dog food tested). Kasco is rich with essential vitamins and generously helps meet all dog needs for balanced minerals.

Stock Kasco yourself—recommend it to your customers. One Kasco sale generally leads to another.

Quality and Grading School; University of Georgia, Athens; sponsored by Southeastern Poultry & Egg Assn., sec., Harold E. Ford, 235 East Ponce De Leon Ave., Decatur.

June 12-14—Eastern Federation of Feed Merchants, Inc.; Whiteface Inn, Lake Placid, N.Y.; exec. director, Austin W. Carpenter, Sherburne, N.Y.

June 13-15 — American Association of Feed Microscopists; Hilton Hotel, San Antonio, Texas; sec., G. M. Barnhart, Missouri Department of Agriculture, Jefferson City, Mo.

June 14-15 — Alabama Poultry Industry Assn.; Municipal Auditorium (Exhibits) and Thomas Jefferson Hotel, Birmingham, Ala.; sec., W. L. Walsh, Box 567, Montgomery.

June 14-17—NEPPCO Egg Quality School; Rutgers University, New Brunswick, N.J.; Dr. A. Van Wagenen, NEPPCO, 10 Rutgers Place, Trenton 8, N.J.

June 17-18 — Delmarva Chicken Festival; Selbyville, Delaware; Delmarva Poultry Industry, Inc., R.F.D. No. 2, Box 47, Georgetown.

June 19-21—Indiana Grain & Feed Dealers Assn.; Mid-Summer Convention; French Lick-Sheraton Hotel, French Lick; sec. Fred K. Sale, 600 Board of Trade Bldg., Indianapolis 4.

June 19-22—The American Dairy Science Assn.; Utah State University, Logan; sec., H. F. Judkins, 32 Ridgeway Circle, White Plains, N.Y.

June 21-22—Association of Southern Feed & Fertilizer Control Officials; Riverside Hotel, Gatlinburg, Tenn.; sec., Maurice B. Rowe, Department of Agriculture, 1119 State Office Bldg., Richmond 19, Va.

June 23-24—Northeastern Poultry Producers Council Business Management Conference for Egg and Poultry Marketing Cooperatives; Hotel Viking, Newport, Rhode Island; Alfred Van Wagenen, 10 Rutgers Place, Trenton 8, N.J.

June 24-25—Arkansas Poultry Festival; Little Rock; Arkansas Poultry Federation, P.O. Box 1446, Little Rock; chm., Jerry Hinshaw, Springdale.

July 19-21—American Poultry Congress and Exposition; Ellis Auditorium, Memphis, Tenn.; sponsored by American Poultry & Hatchery Federation; sec., Don M. Turnbull, 521 E. 63rd St., Kansas City 10, Mo.

July 23-26 — Georgia Feed Assn.; General Oglethorpe Hotel, Wilmington Island, Savannah; sec., Will L. Kinard, Suite 210, 3240 Peachtree Road Bldg., Atlanta 5, Ga.

Aug. 2-5 — Poultry Science Assn.; University of California, Davis; sec., C. B. Ryan, Texas A&M College, College Station.

Aug. 14-18—Business Management Program, sponsored by Southeastern Poultry & Egg Assn., University of Georgia, Athens; sec., Harold E. Ford, 235 East Ponce De Leon Ave., Decatur.

Sept. 1-6—International Congress on Nutrition; Sheraton-Park Hotel, Washington, D.C.; sponsored by International Union of Nutritional Sciences; sec., Milton O. Lee, 9650 Wisconsin Ave., Washington 14, D.C.

Sept. 14-16—National Feed Ingredients Assn.; Liggetts Holiday Inn, Burlington, Wis.; sec., Paul W. Bonewitz, 1023 Equitable Bldg., Des Moines, Iowa.

Sept. 21-23 — Feed Production School; Continental Hotel, Kansas City; sponsored by Feed Production School, Inc.; pres., Lloyd Larson, 20 W. 9th St. Bldg., Kansas City 5, Mo.

Sept. 22-23 — Arkansas Formula Feed Conference; University of Arkansas, Fayetteville; chm., Dr. E. L. Stephenson, Department of Animal Industry and Veterinary Science.

Oct. 4-6 — Northeastern Poultry Producers Council; Exposition and Convention; Onondaga County War Memorial Bldg., Syracuse, N.Y.; Doris Endebrock, Exposition Mgr., 10 Rutgers Place, Trenton 8, N.J.

Oct. 5-7—Texas Nutrition Conference, Texas A&M College Station; chm., Dr. J. R. Couch, Department of Poultry Science.

Oct. 11-12—Virginia State Poultry Federation convention and trade show; Hotel Roanoke, Roanoke, Virginia; sec., J. Paul Williams, 615 East Franklin Street, Richmond 19.

Oct. 12-13 — Association of American Feed Control Officials Annual Meeting; Shoreham Hotel, Washington, D.C.; sec., Bruce Poundstone, Feed and Fertilizer Dept., Agricultural Experiment Station Bldg., University of Kentucky, Lexington.

Oct. 16-18—Kentucky Poultry Federation and Kentucky Poultry Improvement Assn.; Kentucky Hotel, Louisville; John W. Tuttle, field manager.

Oct. 16-20—Business Management Program, sponsored by the Southeastern Poultry & Egg Assn., University of Georgia, Athens; sec., Harold E. Ford, 235 East Ponce De Leon Ave., Decatur.

Oct. 20-21—Cooperative G.L.F. Exchange, Inc.; stockholders annual meeting; Onondaga War Memorial Bldg., Syracuse, N.Y.

Oct. 27-28—National Swine Industry Conference; University of Kentucky, Lexington.

Nov. 2-3—Illinois Feed Assn.-Illinois Poultry & Hatchery Federation, joint convention; Springfield Armory, Springfield; sec., IFA, Dean M. Clark, 141 W. Jackson Blvd., Chicago 4; sec., IPHF, Aubrey Harless, Shelbyville, Ill.

Nov. 2-3—Kansas Poultry Assn.; Broadview Hotel, Wichita; sec., Harry J. Reed, Box 663, Manhattan.

Nov. 9-12 — National Renderers Assn.; Statler-Hilton Hotel, Dallas, Texas; sec., Miss Jamie Fox, 30 N. LaSalle St., Chicago, Ill.

Nov. 16-17—Missouri Poultry Improvement Assn.; Hotel Continental, Kansas City; sec., E. M. Funk, Columbia, Missouri.

Nov. 25-26—American Society of Animal Production; Hotel Sherman, Chicago, Ill.; sec., Clair E. Terrill, Animal Husbandry Research Division, Agricultural Research Center, Beltsville, Md.

1961

Jan. 12-13—Michigan Feed & Grain Dealers Assn.; Michigan State University, Kellogg Center; sec., Nevel Pearson, P.O. Box 472, East Lansing.

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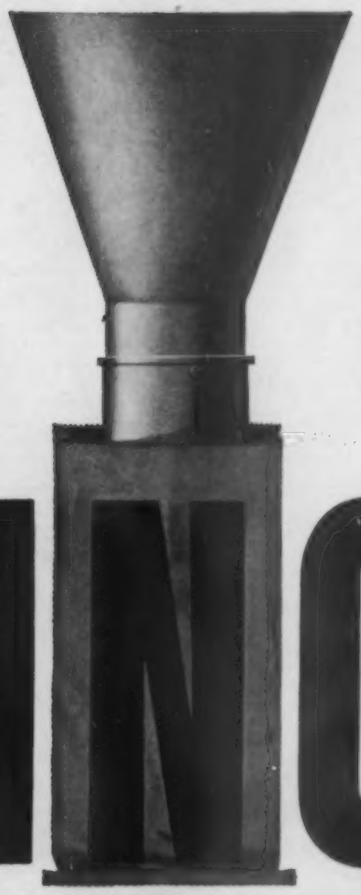

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PACKAGING MACHINERY

another FREE service of the ★ Star Packaging Efficiency Plan!

More efficient packaging machinery is just one feature of the 5-Star Plan. Yet it has helped over 100 companies lower their multiwall bagging and handling costs. All within the last two years!

A midwest packer—by following recommendations made by UNION-CAMP packaging engineers—speeded his bagging rates and saved $48,500. A southern multiwall user now enjoys similar economies. As a result of a 5-Star Plan survey, he installed a UNION I & C Bagger. The new unit cut his labor expense 60 per cent.

For many other firms, installing automatic I & C Acto-Cutters on bagger sewing heads has reduced bagging crews by as much as a third.

The 5-Star Plan offers you impressive money-saving opportunities regardless of the size of your operation. Besides packaging machinery this comprehensive service covers bag design, bag construction, specifications control and a detailed survey of your plant.

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★ BAG DESIGN · BAG CONSTRUCTION · SPECIFICATIONS CONTROL · PACKAGING MACHINERY · PLANT SURVEY

'I'll Have My Algae Medium Rare'

MINNEAPOLIS—How to prepare ocean plant life in a form as tasty as sirloin steak may be one of the challenges facing food reserchers of tomorrow. This possibility is hinted in a prediction of food developments for the year 2060 that was placed in the cornerstone of the first wing of General Mills' new multi-million dollar research center here.

"Vegetable proteins, in new appetizing forms, will become increasingly important to feed a vastly increased population," states the 2060 forecast which General Mills food researchers placed in a capsule to be permanently stored in the cornerstone of their new basic food research building.

General Mills scientists do not say they are working on ways to make sirloin steak out of algae, which floats in oceans, lakes and streams. But they are aware of the high nutritive values in algae. They also say that "plant life is likely to become an increasingly dominant supplier of food in tomorrow's world as population increases and animal sources cannot keep pace with the demand."

(Editor's note: Maybe so. But that'll be quite a switch, it's noted by feed, poultry and swine people as they look at recent price levels.)

"One hundred years from now, a man who goes to dinner may tell the waiter he would like 500 grams of atomic broiled algae," says one of the General Mills researchers. He may say, "I had it in pork chop form last night. Tonight make it sirloin for variety."

The rise of vegetable proteins and the tapping of the ocean for foods in 2060 were among several food forecasts for a century from now.

The convenience developments in food which will keep pace with the mechanized kitchen world are of prime interest in General Mills' research, explains Dr. J. S. Andrews, director of the company's food research.

The company director of commercial and economic research, W. E. Anklam, explains it this way: "The day may come when the homemaker will buy a full meal in one quick operation at her grocery store. She may insert a card in a slot, and out will come all the packages she wants. Also, it is intriguing to think of using a computer card as the boxtop of a complete meal in a package; this computer card would be inserted in a slot in an automatic kitchen. The card would tell the kitchen equipment what to do while the housewife would get in another hour of bridge before her husband came home."

In less than a year, the first wing of the modern research facilities will be in operation. Other wings will be added in a building program to be completed in three to five years.

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Purina Announces Company Transfers

ST. LOUIS — Announcement of three transfers has come from the Ralston Purina Co.

Winfred L. Golden, manager of the Ralston Purina soybean plant at Louisville, Ky., has been transferred to Purina headquarters at St. Louis as manager of the vegetable oil sales, according to D. B. Walker, Purina vice president and director of the soybean division.

Taking Mr. Golden's place as manager of the Louisville plant is Albert I. Gleason, manager of Purina's soybean plant at Memphis, Tenn. Making this announcement was David L. Grant, manufacturing vice president of the Ralston Purina Co.

James K. Sartain, buyer at the Memphis soybean plant, becomes the new manager.

Richard H. Hoagland, of the soybean division, has been transferred to Chicago as assistant manager of the Checkerboard Grain Co., according to Eldred A. Cayce, purchasing vice president.

Mr. Golden joined Ralston Purina in October, 1956, as assistant buyer at the Circleville, Ohio, mill. In April, 1958, he was transferred to the Bloomington, Ill., plant as buyer and in December, 1958, he was appointed manager of the soybean plant at Louisville.

Mr. Gleason joined Purina in June, 1952, at the general offices in St. Louis, leaving for military service three months later. In October, 1954, he returned from military service and became a buying trainee at the Iowa Falls, Iowa, plant. In February, 1956, he was named buyer there and in December, 1958, he transferred to Memphis as manager.

Mr. Sartain joined the Buckeye Corp. in September, 1935, as buyer in the Memphis plant and remained there when Ralston Purina purchased the plant in December, 1958.

Mr. Hoagland joined Ralston Purina in February, 1959, as manager of vegetable oil sales.

New Storage Depot

BELLINGHAM, WASH. — Fisher Flouring Mills Co. unloaded the first rail carload of bulk feed recently at the reopened storage elevator at the port of Bellingham.

Inspection of repairs to the Milwaukee Road spur leading to the dock was completed early in the week.

The new bulk storage depot will serve Whatcom County Fisher feed dealers, who will truck bulk loads directly from the depot to the farm.

The 2,000-ton capacity elevator has been vacant for about 10 years. The original occupant, Washington Co-op Farmers Assn., moved its feed storage depot to its Chestnut Street plant after using the elevator for a number of years.

MOREA DISTRIBUTOR

RAPID CITY, S.D.—A distribution plant will be installed here for a new type liquid livestock feed supplement, according to announcement by the Geyerman Corp., Mitchell, and the Feed Service Corp., Crete, Neb. Ralph N. Morris, Wheel Inn, Rapid City, has been named distributor for the West River area for Morea.

Cottonseed Product Research Need Is Stressed at Clinic

NEW ORLEANS — The pressing need of the cottonseed industry to solve the problem of restrictions in the use of meal for feeding poultry and swine was stressed by Garlon A. Harper, National Cottonseed Products Assn., in his remarks before the ninth annual Cottonseed Processing Clinic held at the U.S. Department of Agriculture's Southern Regional Research Laboratory, New Orleans.

Ten states were represented among the 85 visitors registered for the meeting, co-sponsored by the Mississippi Valley Oilseed Processors Assn. and the USDA's southern utilization research and development division.

Dr. C. H. Fisher, director of the southern division, opened the meeting with a welcome to the visitors and a review of the division's research progress on cottonseed products during the past year. He emphasized new developments which promise greater markets for oil and other cottonseed products. Among those mentioned were a cocoa butter-like fat being evaluated by candy manufacturers for use in confections and the production of methyl esters from cottonseed soapstock as an additive for livestock and poultry feeds. He also described a new method for measurement of lysine (an essential amino acid) in cottonseed meal and a quicker and more economical method for biological assay of nutritive values by the use of protozoa.

Mr. Harper, director of the research and educational division of the National Cottonseed Products Assn., pointed out that cottonseed meal cannot realize its full potential of usefulness and resulting economic returns so long as it is subject to major use restrictions. He added that the market for cottonseed meal as a protein supplement for poultry and swine rations in the cotton-growing states alone could use a total of 4,222,000 tons annually, or nearly twice the present production.

"If we were ready for such a situation now it would help solve two problems: (1) it would tend to reduce pressure on increasing oil supplies resulting from protein demand, and (2) it would help prevent the increasing danger of widespread whole cottonseed feeding." Present commercial meal have been shown, in comparison with laboratory-prepared meals, not to have realized the full protein value present in cottonseed, he said.

H. D. Fincher, Anderson Clayton & Co., Houston, emphasized the importance of temperature and moisture content in the cooking of cottonseed for oil and meal of the best quality. Processors, he said, should try to keep heat damage to protein at a minimum, and endeavor to suppress the development of phosphatidic material of the type not precipitated by water, which increases refining losses due to its emulsifying powers.

Carbohydrates as well as gossypol affect the nutritive value of cottonseed meal, V. L. Frampton, southern division, said in a discussion of changes in nutritive value during processing. He presented results of experiments to show that reaction of protein with raffinose had about the same effect as the reaction with gossypol in reducing protein levels. The studies were carried out through use of meal from glandless cottonseed. It was concluded that the raffinose present causes a reduction in lysine and nutritive quality of the proteins when heat is applied; that gossypol is not as destructive to lysine as raffinose. The nutritive quality of cottonseed protein appears to be highly correlated with the free epsilon amino groups of lysine, he said.

W. G. Quinn, Buckeye Cellulose Co., discussed control of protein levels. In a survey of 13 mills over four seasons, deviations from the mean were found ranging as high as .30 or as low as .06. This, he pointed out, could involve appreciable losses for the mill on shipments where the protein level was too high, and to the buyer when it was too low. He recommended careful attention to processing at all times as the best single remedy for this condition, supplemented by use of control equipment.

During a panel discussion moderated by Dr. Frampton, considerable interest was expressed in the possibility of adding lysine to improve the nutritional value of cottonseed meal. Panel members said that this would probably be worthwhile for poultry feed but not for ruminants, but in either case is not economically feasible at this time.

OPEN HOUSE—Archer-Daniels-Midland Co. recently held open house at its research center in Minneapolis. About 100 families living near the center were invited to tour the research laboratories. Wilfred Witz (left foreground), ADM nutritionist, is telling this group about the care and feeding of future mink coats as well as livestock and poultry.

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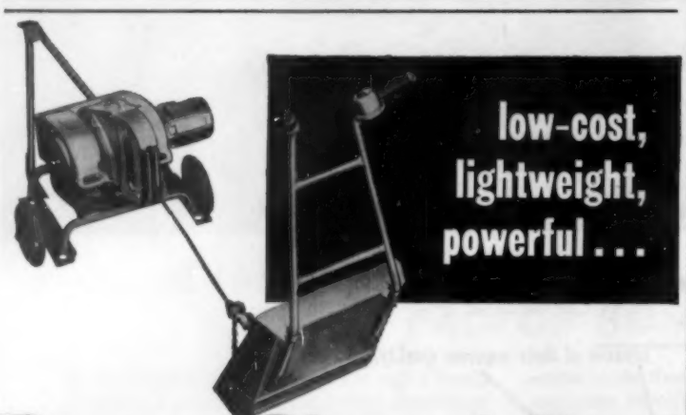

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Feeding Expansion, Research Reported At New Mexico Feeders Day Program

UNIVERSITY PARK, N.M. — Opportunities for expansion of the feeding industry in New Mexico and results of feeding research were cited by speakers at the 21st annual Feeders Day program here at the New Mexico State University Agricultural Experiment Station.

Stockmen from New Mexico, Texas and adjacent states took part in the all-day feeders sessions and most stayed over for the university's fifth annual Cattle Breeders School.

"Opportunities for expansion of livestock feeding are unlimited," said Steve Treadway, Clayton feeder. "New Mexico has an ample supply of grain sorghum, forage crops and cottonseed products. And there are plenty of people who are capable of making top-notch livestock feeders. They not only have a good knowledge of livestock, but they are also surrounded by good sources of technical information.

"Geographically, New Mexico is also favorably situated and has good transportation to eastern and western markets," Mr. Treadway added.

Trends

New Mexico cattle, which used to be shipped east for finishing and marketing, are remaining at home in increasing numbers in local feeding operations. More marketing and butchering are handled locally as the state's population reaches the one million mark, and more range cattle are being shipped west to Pacific coast markets.

Charles M. Quarre, manager of the cattle division of Kern County Land Co., which has ranching and feeding operations in New Mexico, Arizona and California, illustrated these trends with a discussion of his company's buying, feeding and marketing methods.

Several members of the experiment station staff described their 1959 research projects. J. H. Knox, head of NMSU's animal husbandry department, outlined results of one project which showed that calves fed Aureomycin made average daily gains of 2.02 lb. at a cost of $13.48 per 100 lb. gain. Checklot cattle which were fed no Aureomycin gained 1.83 lb. daily and cost $14.09 per 100 lb. gain. Average dressing percentages and average carcass grades were about the same for both lots.

In the first 70 days fattening phase of an experiment in 1959-60, Dr. Knox said one lot of cattle on a heavy ration of ground maize, cottonseed meal, alfalfa hay and corn silage, plus Aureomycin, made the greatest daily gain (1.71) at the cheapest cost 100 lb. gain ($11.12).

Pellets Fed

In another experiment, pellets were fed to yearling steers for 91 days in 1959-60. Greatest average daily gain (2.86 lb.) was made by steers which were fed pellets made of 35% coarse alfalfa hay, 35% cottonseed hulls, 15% ground maize, 10% cottonseed meal and 5% molasses.

Prof. P. E. Neale, animal husbandman at NMSU, discussed a series of feeding trials using pellets with and without molasses with either 80 or 70% hay mixtures. He said an average of the two years of trials indicated that the no-molasses pellet is best. Pellet size had no effect on consumption or gain, Dr. Neale said.

A report on tranquilizers was given by Dr. T. H. Belling, NMSU veterinarian. He found that one lot of tranquilized cattle averaged 8% less loss of weight in a 74-hour shipping test than a non-tranquilized lot.

W. E. (Bunny) Flint, extension beef cattle specialist at NMSU, served as chairman of the feeders sessions. Participants toured the station's barns and corrals.

The "steer of tomorrow" occupied the attention of most speakers at the following day's cattle breeders school. Seth Shaw, director of public relations for Safeway Stores, Oakland, Cal., said, "Tomorrow's steer will use feed efficiently and make rapid gains. It will have tenderness, and will finish out to a nominal size with much lean meat."

R. L. Hiner, U.S. Department of Agriculture, Agricultural Research Service, Beltsville, Md., said, "We need to get fat from the outside of the carcass and inside the lean meat."

Bill Moseley, Amarillo packer representative, said, "We are selling too many overly fat cattle in this country. For the packer to stay in business, we must have the right kind of finish, grade and weighing condition. Buying is dictated by the housewife and we must give her what she wants."

Much of the improvement taking place in the cattle business can be attributed to the free actions of the cattlemen themselves, said Reed A. Phillips, special assistant to the secretary of agriculture, Washington, D.C.

"The beef cattle industry is a shining example of how orderly production and marketing can increase together without government supports," he said. "Cattlemen have traditionally maintained freedom and flexibility over their individual production and marketing operations. They are reaping the benefits which accrue from such independence. Mar-

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CHERRY SEEDS MAY BE PROTEIN SOURCE

STURGEON BAY, WIS.—Researchers at the University of Wisconsin have discovered that cherry seeds may provide a valuable source of protein for animal or poultry feeding, according to the Wisconsin Red Cherry Growers.

Researchers Dr. K. G. Weckel and H. D. Lee note that the seeds contain about 6% oil to yield something like 180,000 lb. of oil annually and which could be extracted easily. The seed also contains nearly 4.5% nitrogen (crude protein).

The cherry growers note that about 10% of the cherry is pit, and that the "pits are not only waste but also create a disposal problem."

The primary aim of the researchers' tests is to find out what these products might be suited for so as to chart possible markets.

Currently the research men are investigating the potentialities of use of the kernels in animal formulations.

They point out that research shows the oil is very much like corn oil, but it has the disadvantage of being less stable. The two scientists have seen no qualities which make this oil uniquely suitable for anything.

kets have grown along with increased beef production. This is in contrast to weaker markets and loss of markets for the commodities which look to government for special supports."

He predicted that cattle slaughter will increase cyclically over the next few years as numbers increase, and prices may follow a downward trend as they have in past cycles. However, he added, a drastic price decline is not in view unless cattlemen overexpand and bring on glutted markets. "The soundness of the cattle industry's combined judgment gives promise of a bright future for it," he concluded.

The school was sponsored by the beef cattle improvement committee of the New Mexico Cattle Growers Assn. and the NMSU Agricultural Experiment Station and the Extension Service.

Engineering Firm Adds New Partner

HUTCHINSON, KANSAS—Paul L. Whitehair has been announced as a new partner in the Continental Engineering Co. here.

P. L. Whitehair

Duties assigned to Mr. Whitehair include sales, engineering and public relations.

Mr. Whitehair is a graduate of the milling school at Kansas State University, Manhatten. More recently he has been associated with the J. B. Ehrsam & Sons Manufacturing Co., Enterprise, Kansas.

Mr. Whitehair will headquarter at Hutchinson in the offices of Continental Engineering.

Sales School Held

WALTHAM, MASS.—Managers of 10 company-owned retail stores attended a five-day course in advanced salesmanship held recently at the home office and research center of Wirthmore Feeds, Inc., here.

Those attending included Frederic C. Baird, Brattleboro, Vt.; Donald A. Churchill, Shelburne Falls, Mass.; LeRoy S. Moore, Jr., Ipswich, Mass.; Clenton R. Stanley, White River Junction, Vt.; Charles E. Brown, Ogdensburg, N.Y.; James Brown, Alton, R.I.; Edward Klemanski, Pittsfield, Mass.; Robert Wilson, Springvale, Maine; James Dunn, East Pepperell, Mass., and Charles E. St. Peter, Jr., North Whitefield, Maine.

Purdue Egg Day Is Planned for April 6

LAFAYETTE, IND.—Program plans for the eighth annual Purdue Egg Day, scheduled April 6 at the Purdue Memorial Center here, have been announced by David D. Jackson, extension poultryman. The one-day event is sponsored by the Purdue University Agricultural Extension Service, U.S. Department of Agriculture and county extension committees.

Topics scheduled for discussion in the morning include: "How to Evaluate Random Sample Results," "The Pros and Cons of Started Pullets," "Effect of Feed on Egg Quality" and "New Developments in Cleaning Eggs."

Afternoon topics will include: "Producing and Marketing Quality Eggs," "Capitalizing on the Population Explosion" and "What's Happening in Research?"

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52. **Analysis and Feeding Value Tables for Beef Cattle and Sheep**—6-page article, by Dr. S. H. Morrison, Nutrition Consultant, 25c single copy; 3-5 copies 15c ea.; 10 or more, 10c each.
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Costs of Tallow and Ground Corn on the Same Productive Energy Basis and Fats and Oils Used in Formula Feeds, October, 1955-59

Year and quarter	Tallow: Price per pound*	Tallow: Price on a corn energy per bushel basis	Ground corn price per bushel†	Tallow price as a percentage of corn	Fats and oils used in formula feeds‡
1955-56:	cents	dollars	dollars	%	1,000 tons
October-December	7.7	1.66	1.33	125	25.8
January-March	6.8	1.46	1.39	105	29.1
April-June	6.7	1.44	1.61	89	37.7
July-September	6.4	1.38	1.67	83	38.1
Total					130.7
1956-57:					
October-December	6.9	1.49	1.44	103	40.6
January-March	6.8	1.46	1.41	104	47.2
April-June	7.0	1.51	1.41	107	52.2
July-September	7.8	1.68	1.39	121	52.2
Total					192.2
1957-58:					
October-December	8.0	1.72	1.28	134	61.0
January-March	7.6	1.64	1.24	132	68.9
April-June	7.4	1.59	1.42	112	71.3
July-September	7.5	1.62	1.41	115	70.0
Total					271.2
1958-59:					
October-December	7.5	1.62	1.25	130	64.6
January-March	7.0	1.51	1.28	118	56.3
April-June	6.8	1.46	1.30	112	61.2
July-September	6.2	1.34	1.33	101	55.0
Total					237.1
1959-60:					
October-December	5.9	1.27	1.21	105	**

*Inedible tallow prime, tanks, Chicago. †No. 2 yellow corn, Chicago. Includes an allowance of 8c for grinding charge. ‡Revised, Bureau of Census. **Not yet available.

Feed Use of Fats And Oils Down 13%

WASHINGTON — Although the 237,000 tons of fats and oils used in animal feeds in the 1958-59 feeding year were 13% less than the 271,000 tons fed in 1957-58, the volume of fats and oils consumed by livestock continues generally high, reports the U.S. Department of Agriculture.

The quantity of fats and oils fed during the 1958-59 feeding year is the second largest amount used in this manner since data were first collected in 1954, USDA says.

(The accompanying table gives quarterly data on fats and oils fed, based on revisions just reported by the Bureau of the Census, and it also shows the comparative costs of prime inedible tallow and ground corn.)

Fat Price Factors

According to USDA, factors outside of the livestock-feed economy account for much of the decline in fat prices over the last decade or so. Normally, soap and drying oil products industries are the largest users of nonfood fats and oils, and a change in their demand for these ingredients would have a greater effect on fats and oils prices than would the demand of the formula feed industry, USDA explains. During the past few years, production of inedible tallow, the major nonfood fat, has increased sharply. While exports have been large, consumption by both the soap and drying oil products industries has declined.

Relatively low tallow prices were said to be at least partly responsible for the increased use of fats and oils in feeds in recent years. Such factors as improved physical properties of the feed and the high energy content of fat also have contributed, especially to its use in broiler feeds.

The growing practice of adding fats and oils to feed ingredients, particularly oilseed meals and alfalfa meal, may be contributing to the decline in the quantity going directly into formula feeds, according to USDA authorities. The fat content of much of the meal currently being produced is low, since it is produced by solvent processing.

USDA notes that fat added to dehydrated alfalfa meal makes the feed less dusty and easier to handle and also aids in the distribution of the antioxidant that stabilizes the vitamin A content of this meal. Fats added to oilseed meals and alfalfa meal would reduce the need for adding fats to formula feeds, since these are important ingredients of most of the prepared feeds, USDA notes.

Use-Price Relationships

Comparisons in the accompanying table do not indicate that feed manufacturers varied their use of fats, by quarters, with changing price relationships, since 1955. The quantity used decreased in the first three quarters of 1959, even though prices of tallow declined relative to corn. These comparisons, however, indicate that the price of tallow has been relatively higher than corn, based on feed value, for most of the four-year period.

USDA states that the productive energy of tallow is approximately 2.6 times that of ground corn. The table compares corn prices per bushel with the price of the quantity of tallow having the same productive energy. Both tallow and corn prices are reported for Chicago. Inedible tallow, prime in tanks, and No. 2 yellow corn price series are used in the comparison. An allowance of 8¢ bu. is made for the cost of grinding corn.

Tests on Hen Floor Space Needs Reported

ATHENS, GA. — The poultry department of the University of Georgia has completed two tests on floor space requirements for White Leghorn hens.

For duplicated pens containing 1.5, 2, 2.5, 3, 3.5, and 4 sq. ft. per hen, egg production averaged, on a hen day basis, 59.2, 60.4, 63.1, 60.8, 61.7 and 58.6% respectively.

All pens had high mortality, but the differences were not significant, the report showed. Litter management was a problem in the pens where 2 sq. ft. per bird or less was provided. In the winter, when the house was closed on the north side, the litter could not be dried by stirring, so it became caked and had to be removed.

Work on this project is continuing.

St. Regis Office Moved

COLUMBUS, OHIO—St. Regis Paper Co. announces that the regional and district office of its bag division has moved from 17 N. 4th St., Columbus 15, Ohio, to 2256 E. Main St., Columbus 9, Ohio.

The new telephone number is BElmont 7-5471.

Importance of Exports To Poultry Industry Stressed at Session

KANSAS CITY—The growing importance of exports to the U.S. poultry industry and how further expansion in this direction might be attained were pointed out by speakers at the recent Institute of American Poultry Industries' Fact Finding Conference. (Earlier reports from this meeting appeared in Feedstuffs Feb. 20.)

"While the future of the U.S. poultry industry is right here at home, exports will be increasingly important in the next decade," predicted David L. Hume, director, dairy and poultry division, Foreign Agricultural Service, U.S. Department of Agriculture.

Mr. Hume described the government as a partner, operating in the background, to support the industry's activities in developing foreign markets. "Neither the Foreign Agricultural Service nor the men on the industry's International Trade Development Committee's staff have merchandise to sell," he said. "They do not represent any particular dealer or any particular brand. They are creating an interest in poultry and poultry products. But it is up to private sellers to find their own customers and make private sales to them," he said.

Mr. Hume explained that poultry and poultry products can be introduced into new markets abroad by sales for foreign currency under Public Law 480. But once they have been introduced, it is the responsibility of private industry to expand the business without direct government assistance.

Poultry exports, which were only 28 million pounds in 1955, increased to 51 million pounds in 1958 and 125 million pounds last year. Mr. Hume said the recent upward trend in egg exports—mostly in the form of egg solids—is cause for "controlled excitement."

"Foreign markets can be lost—but not developed—overnight," Mr. Hume said. "Their development requires a long-term approach and much patience."

Export Suggestions

Processors interested in further expanding the export market for poultry were offered four suggestions here by C. E. Sidler, who formerly directed the industry's International Trade Development Committee's work in Europe.

Mr. Sidler suggested that industry people should:

1. Push export sales when markets here are low and our prices are competitive in the foreign markets;
2. Develop personal relationships with foreign buyers;
3. Learn more about the foreign customer's language, his customs, and his currency;
4. Find out their preferences and cater to them; listen to their complaints and remove the cause; make progress and pass along the results.

"Price has been and will be a prime factor in our poultry exports," Mr. Sidler said. But he emphasized that mutual confidence and a satisfactory product are also necessary if the industry is to build further export business on the foundations that have been laid.

He stressed the importance of uniformity, pointing out that U.S. packs lack the uniformity that foreign buyers find in packs from other countries. Weights, he said, should be marked on the boxes clearly—in both pounds and kilograms. Excess moisture should be eliminated. Trussing wax-wrapped birds would make them more attractive to foreign consumers.

He cautioned against letting new foreign customers take on too large an order initially.

Poultrymen who want an expanding and prosperous industry—and freedom to operate—were advised not to ask the government to solve their price problems.

"The alternative to growing dependence on the government," said Dr. Earl L. Butz, dean of agriculture at Purdue University and formerly assistant secretary of agriculture, "is realistic pricing and effective merchandising."

Warning the industry of the price it would pay for government help, he said, "We would be saddled with a growing maze of controls. And price guarantees would ultimately force us to accept rigid restrictions — that would severely limit our rights to produce and to market.

"This is what has happened to cotton growers, tobacco raisers and wheat producers," Dr. Butz pointed out. "Their unit prices have been maintained, but their incomes have suffered. And it's income that producers spend—not price."

Dr. Butz doubts that a marketing order for poultry or eggs would accomplish much, price-wise.

He noted that a marketing order designed to reduce supplies by regulating quality would have limited effect in this industry because the present quality of poultry is generally high and the quality of eggs is being improved rapidly.

An industry-administered program

PANEL—Panel members at the annual Sterwin Chemicals, Inc., sales conference at Sky Top, Pa., are shown (left to right), as they discussed the CocciVac-Trithiadol program for controlling coccidiosis: L. R. Patton, assistant sales manager; Dr. Frederick Coulston, director of experimental pathology and toxicology, Sterling-Winthrop Research Institute; Dr. H. N. Lasher, director of laboratories, Delaware Poultry Laboratories; Dr. T. O. McMillan, poultry specialist for Sterwin; Dr. A. S. Cosgrove, director of diagnostic laboratories, Delaware Poultry Laboratories, and Dr. W. P. Williams, poultry specialist for Sterwin.

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to control production would require new legislation, he said. And curtailing production of poultry and eggs wouldn't do much to raise their price as long as red meats and other proteins were free to move into the market to replace them.

Those who press for direct price supports logically ask why poultry producers shouldn't be treated the same as producers of the so-called basic commodities. They overlook the fact, Dr. Butz said, that poultry and eggs are perishable commodities—with limited storage life and relatively high storage costs. The problems that arise as a result quickly necessitate iron-clad production and marketing controls.

If production controls were imposed—either administered by industry or enforced by the government—Dr. Butz said it is highly doubtful that the poultry industry could look forward to any growth at all in the next several years.

"The meat and milk industries," he said, "seem to be on the threshold of the same kind of cost-reducing technological break-through the poultry industry has had. If this industry were to retreat voluntarily from the relatively dominant position it now has in the market, it would give producers of competing products a situation ready-made to their advantage."

New Products

Another speaker observed that today's stream of new products will look like a meandering brook compared to the flood of them foreseen in the '60's.

Ray Bailey, manager of food marketing for This Week magazine, said that historically new products have been planned primarily to fill company needs rather than consumer wants. But leaders in the marketing field today start their thinking with the consumer, he said, and he predicted that in the 1960's companies that plan new products with consumer benefits as the starting point will forge way ahead of their competitors.

"Next to the importance of the consumer in new product development," Mr. Bailey said, "is the burgeoning power of the retailer. To give your new product the right start in life, it is vital to work closely with the retailer, because—if he should choose to do so—he is in a position to throw up formidable road blocks that could cause delays that would be disastrous for you."

While, for many businesses, new products are the key to survival, Mr. Bailey warned the poultrymen that many new products "lay an egg." Most successful ones are the result of exhaustive research, development and testing.

"On a nutrient basis," he said, "we passed from the carbohydrate era to the vitamin era. And now we're in the protein era. Protein is foremost in the public mind. And your own research indicates that protein and poultry products are synonymous.

"Self-Service Sale"

"Your product and your marketing program should be geared to the self-service sale," said William M. Humberg, editor of Food Merchandising.

Close to 60% of today's meat is sold through self-service counters, and the percentage will continue to grow, he predicted. He cited tests indicating that processor-packaged birds have the longest "shelf-life."

In order to know how to package poultry properly, he said, it is important to know how it is going to be handled in the home. In store-interviews with over a hundred women who had just purchased poultry, Mr. Humberg said it was found that almost two thirds of them planned to hold their chickens for two or three days before they used them. A majority of the women said they would hold them in the refrigerator, not the freezer.

"Regardless of your sanitation, your handling care, your prompt delivery—despite all you can do—the ultimate fate of your product still depends a great deal on how other people handle it—the retailer and the housewife," Mr. Humberg said. "That's something you can't control. But it's something you should consider in planning your packaging and setting up your time schedules."

Officers Named

Oscar A. Day, Wilson & Co., Inc., Chicago, was reelected chairman of the board of directors of the Institute of American Poultry Industries. John R. Hargreaves, Federalsburg, Md., was named vice chairman.

Harold Williams was reelected president, W. F. Priebe, Jr., secretary-treasurer, and Opal Ream assistant secretary-treasurer. All are from Chicago, where headquarters are maintained.

In addition to Mr. Day and Mr. Hargreaves, the following were named to the board: Herbert Beyers, Norbest Turkey Growers, Salt Lake City, Utah; C. L. Cagle, Cagle's, Inc., Atlanta, Ga.; Harry C. Carbaugh, Tennessee Egg Co., Chattanooga, Tenn.; Enoch S. Christoffersen, Christoffersen Poultry, Egg & Feed Market, Turlock, Cal.

Marshall Durbin, Sr., Marshall Durbin & Co., Inc., Birmingham, Ala.; Joseph Fechtel, Eastex Poultry Co., Dallas, Texas; Charles W. Frank, Sr., L. Frank & Co., New Orleans, La.; Chester B. Franz, Chester B. Franz, Inc., St. Louis, Mo.; Mike Hallren, Hallren Poultry & Creamery Co., Fairview, Okla.

Vic W. Henningsen, Henningsen, Inc., New York, N.Y.; Grant W. Hess, Hess Michigolden Duck Farm, Hemlock, Mich.; Fred N. Hunt, Washington Co-op Farmers Assn., Seattle, Wash.; Ben C. Iverson, Vilas & Co., Storm Lake, Iowa.

Charles R. Lofgren, Swift & Co., Chicago; Dean Olson, Olson Brothers, North Hollywood, Cal.; Earl B. Olson, Farmers Produce Co., Willmar, Minn.; Edward E. Palmer, Land O'Lakes, Minneapolis, Minn.; Harry A. Perry II, Seymour Foods, Inc., Topeka, Kansas.

Vic Pringle, Rockingham Poultry Marketing Co-op, Broadway, Va.; Frank A. Priebe, Priebe & Sons, Chicago; Ray G. Purnell, Quick Frozen Foods, Tupelo, Miss.; M. H. (Bill) Simmons, Plus Poultry of N. W. Arkansas, Siloam Springs, Ark.; Alton L. Stevens, Fort Halifax Packing Co., Waterville, Maine; Harold J. Wendt, Ocoma Foods Co., Omaha, Neb.; Lloyd Woodall, Armour & Co., Chicago.

Hobart Creighton, Warsaw, Ind., was presented with the Institute of American Poultry Industries "Industry Service Award" in a special ceremony.

The award, given annually to an industry business man who has served the poultry and egg industry "above and beyond self gain," was made by Harold M. Williams, IAPI president, during the Fact Finding Conference.

About 4,000 attended the conference and the exhibition of machinery and services which is held in conjunction with it. The exhibits were the largest in the association's history.

Sales Service Head Of Bag Plant Named

ST. LOUIS — Arthur E. Schenck has been named sales service manager of the East Pepperell bag manufacturing plant of Bemis Bro. Bag Co., according to W. I. Rodgers, manager.

A. E. Schenck

Mr. Schenck will be responsible for all sales activities and training within the East Pepperell delivery territory which includes the New England and east central states. He joined the firm in 1943 at the company's New York general sales department as a sales trainee, and has served since 1953 as an executive general salesman in that division.

Pilch's Poultry Farms Adds to Sales Staff

HAZARDVILLE, CONN. — A. J. Tetreault has been appointed to the sales and service staff of the northeast division of Pilch's Poultry Breeding Farms, Inc., according to an announcement by John Nay, sales manager.

A. J. Tetreault

Mr. Tetreault was graduated from St. Cesaire College, Quebec, in 1947, where he majored in animal husbandry. Following his graduation, he became associated with Beacon Milling Co. in sales and service for southern Massachusetts and Rhode Island. For five years prior to joining the Pilch organization, Mr. Tetreault was territorial manager of Tioga Mills for Vermont, New Hampshire, Massachusetts and Connecticut.

Clemson Poultryman

CLEMSON, S.C. — Dr. Donald E. Turk has been appointed assistant poultryman in the poultry department of the Clemson College Agricultural Experiment Station, according to Dr. O. B. Garrison, station director.

Dr. Turk attended Cornell University where he received his B.S. degree in biochemistry from the college of agriculture and a master's degree after writing a thesis on the role of molybdenum in chick nutrition. Dr. Turk then took up his studies at the University of Wisconsin, where he worked on protein and energy interrelationships with turkeys, broilers, replacement pullets and laying hens. Later, he worked on the role of zinc in laying hen diets and its effect on chicks hatched from eggs laid by these hens. Dr. Turk received his Ph.D. degree from the University of Wisconsin.

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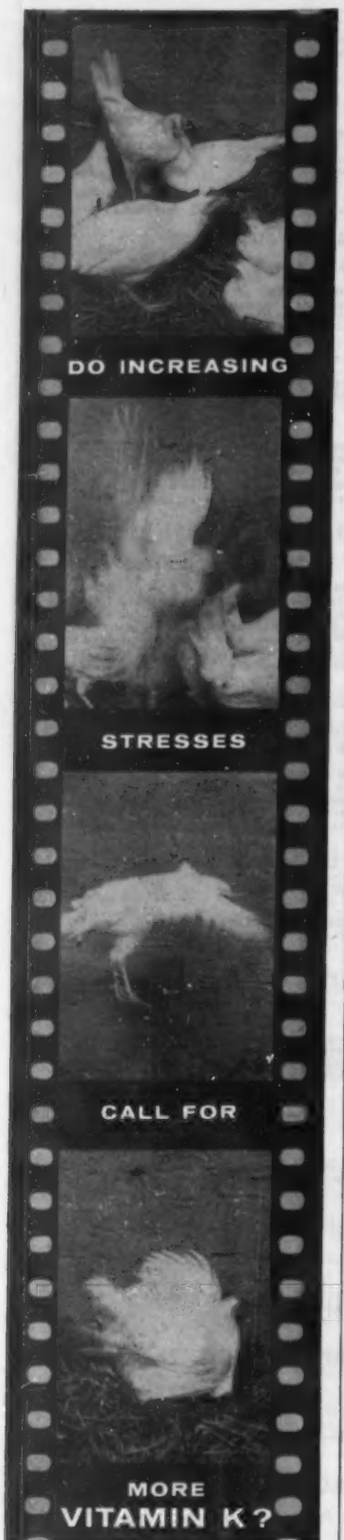

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UP OR DOWN

By Dr. Leonard W. Schruben, Agricultural Economist, Kansas State College

Soybean Meal Prices

It's time to review the soybean meal situation. Many changes have taken place in the market the past six months. Mostly these changes have added weight to the opinion that farm prices will hover fairly close to the loan rate for much of the remaining season.

It would be well not to overlook sudden price changes in the current situation. The supplies for the season are large but not as large as a year ago. The livestock is being fed, but price declines induce farmers to watch cash costs more closely. While the supply-demand balance is fairly close, under more normal circumstances this factor of economy may weigh the scales in favor of sufficient supplies.

The exhibits which accompany this article are to help you evaluate the current situation in light of past history. Of course history does not always repeat and there isn't any way of knowing for sure ahead of time whether or not prices will move up or down. But a knowledge of it will help you in deciding on your procurement and inventory policy.

Direction of price changes since 1930 is indicated in Exhibit 1. This exhibit has been prepared to show you the percent of times prices have gone up, stayed the same or gone down from March to the following May, to July and to September.

Here is how to read Exhibit 1: The top part of the bar indicates the percent of times the average price of soybean meal at Chicago went up from March to May since 1930. Within this bar is a 59. This means that 59% of the years from 1930 soybean meal prices advanced from March to May. Changes from March to the other months in Exhibit 1 are read in the same manner.

The middle part of the bar indicates the percentage of years prices remained the same from March to the months as indicated. The bottom part of the bar shows the percentage of the years prices went down from March. You will notice that soybean meal prices have gone up or stayed the same about two out of three years since 1930.

EXHIBIT 1. Soybean Meal, 44% Protein, Chicago, 1930-58

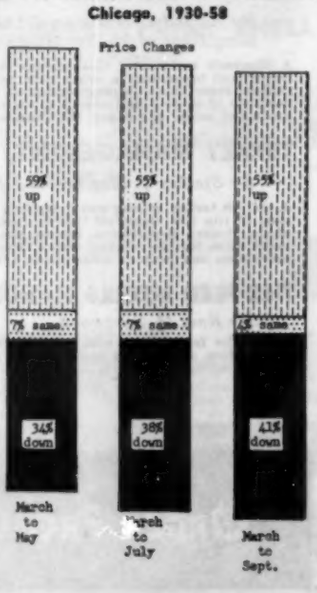
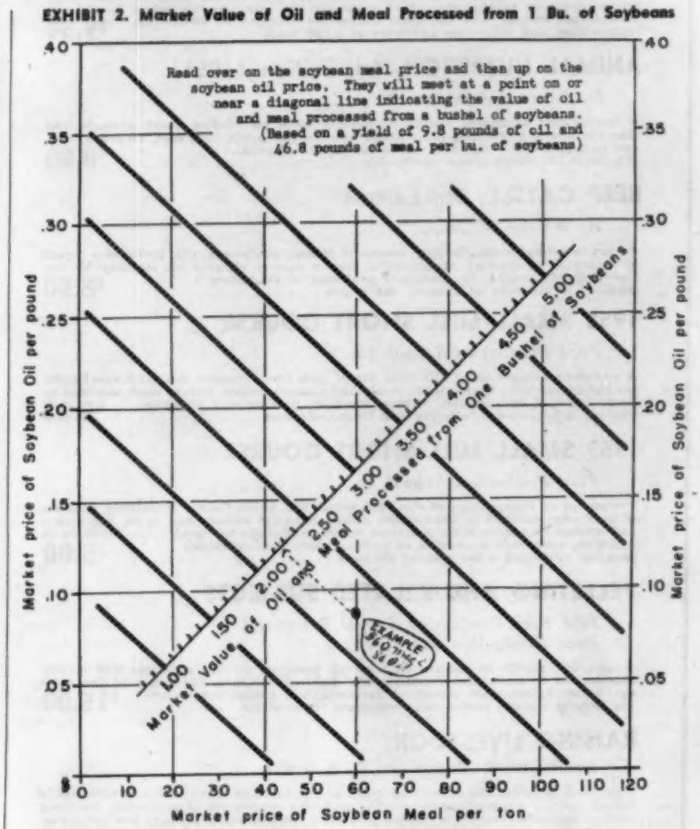


EXHIBIT 2. Market Value of Oil and Meal Processed from 1 Bu. of Soybeans



Price Related to Product Values

Soybean meal prices are related to the prices of beans and oil. When the price of oil goes up processors can pay more for beans or charge less for meal and maintain their same conversion charge. When oil goes down in price, processors must charge more for meal or pay less for beans in order to maintain their margin.

Exhibit 2 is designed to point out the general relationship which exists between the price of meal, oil and beans. To use it you find the price of soybean meal per ton on the bottom scale and read up until even with the price of oil on the side scale. You will be near a diagonal line. Now follow this line to the scale and you will find the value of oil and meal processed from one bushel of soybeans.

For example, suppose meal is $60 ton and oil is 8¢ lb. You find the $60 on the bottom scale and read up until even with 8¢ on the side scale. By reading along the diagonal line you will find the value of products from a bushel of beans is about $2.25. No allowance is made for processing costs and it is based on typical recovery percentages of oil and meal in soybeans. These may vary somewhat from one crop to another as well as from one part of the country to another.

Summary

Past history doesn't necessarily repeat. At this point we can expect some small advance in soybean meal prices. However, it also looks as if this year's price advances have about run their course. The price support program can be expected to provide a substantial floor for soybeans at least for the immediate period ahead. If oil prices were to advance processors likely would bid more for beans than reduce the price of meal although some of each could take place. It doesn't appear that oil prices will advance in the near future.

News Editor Joins Dr. Salsbury's Staff

CHARLES CITY, IOWA — R. V. Fischer, Greene, Iowa, has joined the creative services department of Dr. Salsbury's Laboratories, Charles City.

R. V. Fischer

He has attended Iowa State Teachers College, Cedar Falls; Iowa State University, Ames; Louisiana State University, Baton Rouge, and Oklahoma University, Norman. He attended the latter two during service in World War II.

Following service, he published a weekly newspaper, the Iowa Recorder, Greene, Iowa, for nine years, entering the farm publication field thereafter. For the past 3½ years he has been news editor of the Charles City Daily Press.

ASSOCIATE HATCHERY

FORREST, ILL.—Appointment of Incubadora Painier de Venezuela, Los Teques, Venezuela, as an associate hatchery, has been announced by Dr. W. Gregory Clark, Honegger Farms Co., Inc., international division. Claude Balinet is manager.

"All I know about the farm supply business, I learned from Purina," says Mr. Lemin.

"Our service center is planned to serve our changing market"

— *says William Lemin, New Carlisle Farm Supply, New Carlisle, Ohio*

"Agriculture in the New Carlisle area is changing as rapidly as the jet age demands," says Mr. Lemin. "There's a growing number of 'sundown' farmers who have jobs in industry. Full-time farmers are specializing on big operations.

"Purina has helped us set up an organization that serves this market's needs and has flexibility to meet changes of the future.

"We have bulk delivery for the big feeder, Check-R-Mix for the farmer with his own grain, complete Chows and Check-R-Mix feeds for the man who farms a few acres. Our new mill also will have grain banking.

"Our Purina-trained staff can talk to the professional farmer on his own terms and he can help the part-time man who often lacks knowledge on livestock or poultry.

"We believe that our success in the future will be measured by our ability to serve producers of milk, meat and eggs."

* * * *

Service has brought growth to New Carlisle Farm Supply. Today's tonnage is two and a half times what it was when Mr. Lemin became head of the organization. "We get a lot of help from Purina Salesman Harold Frazier," says Mr. Lemin. "He helps us with business management, group meetings, employee training and on-the-farm selling."

New Carlisle Farm Supply's bulk delivery service is important to Dairyman Claude Moore (left), who discusses the records of his 50 registered Holsteins with Al Tackett.

J. W. Hoke (right) drove a spring wagon to get his first Purina Chows 43 years ago. He formerly had a dairy herd, but now feeds Yorkshire hogs, Angus cattle and chickens.

Caged layers were introduced in the area by New Carlisle Farm Supply, which now feeds about 15,000 birds. Outside Salesman Al Tackett (right) is seen here with Mr. and Mrs. James Rhoads, who own one of the flocks.

PURINA...YOUR PARTNER IN SERVING ANIMAL AGRICULTURE

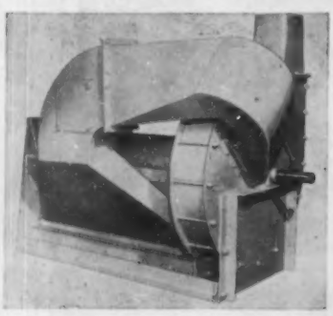
WORTH LOOKING INTO

NEW PRODUCTS • NEW SERVICE • NEW LITERATURE

DESCRIPTIONS OF NEW AND IMPROVED PRODUCTS AND SERVICES PROVIDED BY MANUFACTURERS AND SUPPLIERS ARE PRESENTED IN BRIEF FORM. FOR ADDITIONAL INFORMATION, PLEASE USE THE ACCOMPANYING COUPON.

No. 7837—Corn Sheller

Bryant Engineering Co. announces its No. 22 Corn Sheller. The unit is a medium capacity machine equipped with full length aspiration which thoroughly cleans the shelled corn,



the company says. These machines are available for right hand or left hand rotation and with a variety of accessories such as built-in crusher, support stand for sheller, screw conveyor for shelled corn and others. For more information, check No. 7837 on the coupon and mail.

No. 7834—Booklet on Trithiadol

A technical booklet called "A Laboratory Evaluation of the Effect of the Coccidiostat Trithiadol on the Growth of Chickens," has been released by Sterwin Chemicals, Inc. The booklet is reprinted from the publication Toxicology and Applied Pharmacology. It contains charts and graphs plus tables on research results. Copies can be obtained by checking No. 7834 on the coupon and mailing to this publication.

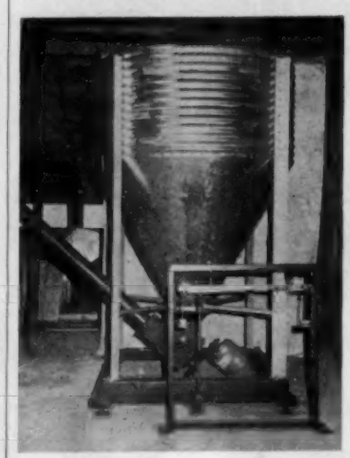
No. 7839—Disposable Pallet

A lightwieght, disposable pallet made entirely of paperboard has been announced by Union Bag-Camp Paper Corp. The pallet consists of a sheet of double wall corrugated board to which are attached two half-cores made of laminated kraft paperboard. These cores can be centered to fit

any type of fork lift truck. Recommended maximum capacity of the pallet is 36 bags. For more information check No. 7839 on the coupon and mail.

No. 7833—Weigh Station

The new Ross Weigh Station handles all bulk material with accuracy, according to its maker, the Ross Manufacturing Co. An automatic cut-off when scales balance eliminates



over-weight, spillage and the necessity of watching scales. The station can be equipped with any length auger desired, and the auger works in any position up to 45°. The station is available in 1,000-lb., 2,000-lb. and 5,000-lb. capacity. For more information, check No. 7833 on the coupon and mail.

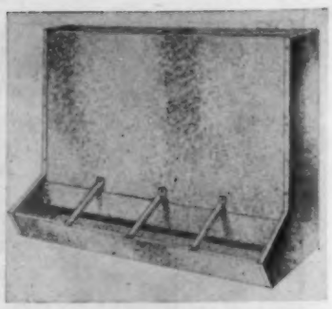
No. 7838—Whey Block Promotion

A major promotion recommending the use of Peebles' red whey blocks has been announced by Western Condensing Co. Advertising in all leading farm media, plus ¼ lb. samples, lit-

erature and display materials will be included in the promotion. According to the company, two out of three birds prefer the red color. For details about the promotion, check No. 7838 on the coupon and mail.

No. 7832—Pen Feeders

A line of dry lot and farrowing pen feeders has been announced by Brower Manufacturing Co. Designed for feeding sows or gilts during confinement, they are also adapted for feeding supplements, the company says. The pens are built to fit flush against walls and fences, and they are provided with keyhole slots for hanging. The bottom of the feeder slants to the front for free flow into the



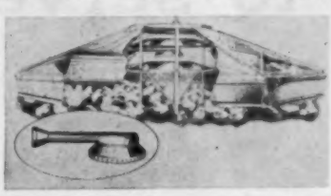
trough, and the feed flow regulator adjusts to four positions. The trough is equipped with feed saver flanges which help prevent hogs from rooting out feed. The feeders are made of Armco Zincgrip, and are available in 2 bu., 4 bu., 8 bu. and 12 bu. capacities. For details, check No. 7832 on the coupon and mail.

No. 7831—Pellet Dies

Lerberg Engineering Co. announces a pellet die for all popular types of pellet machine. Features, according to the company, include micro-finished holes, high-chrome-alloy steel, carburized heat treated and low cost. The company said it has a new process for giving "extremely smooth" holes in dies. The drilling process leaves no tool marks and gives a "high micro finish." This is said to enable the die to get a faster break-in, thus eliminating costly break-in periods for the operators. For more information, check No. 7831 on the coupon and mail.

No. 7835—Gas Chick Brooder

The Oakes Manufacturing Co. announces the availability of the model No. 1686 "Comfort Spot" gas brooder featuring a high capacity 34,000 BTU burner. According to company



literature, the brooder produces a greater range of heat coverage to brood more birds, up to 1,000 chicks. An 84-in. snap-on canopy comes in six pieces and snaps together. It is held permanently by 12 bolts. Comes with or without canopy aprons. For more information, check No. 7835 on the coupon and mail.

No. 7840—Corn Sheller Brochure

A brochure on a medium size corn sheller is available from Belle City Manufacturing Co., Inc. The machine is constructed of heavy channels and angle iron similar to the No. 4 corn sheller, the brochure says. It also uses heavy duty roller bearings, is equipped with both shuck and cleaning fans and has two counter-balanced sieves. The illustrated brochure contains specifications and dimension and layout sheets. For copies, check No. 7840 on the coupon and mail.

No. 7836—Poultry Supply Catalog

Anderson Box Co. has announced its 1960 catalog of hatchery and poultry supplies and dressed poultry packaging. The 40-page book illustrates the company's complete line. In addition to descriptions of its chick boxes, egg cases and dressed poultry boxes, special emphasis has been placed on the "Hi-Lo-Matic" hanging waterers, "Egg Queen" egg

Send me information on the items marked:

- ☐ No. 7831—Pellet Dies
- ☐ No. 7832—Pen Feeders
- ☐ No. 7833—Weigh Station
- ☐ No. 7834—Booklet on Trithiadol
- ☐ No. 7835—Gas Chick Brooder
- ☐ No. 7836—Poultry Supply Catalog
- ☐ No. 7837—Corn Sheller
- ☐ No. 7838—Whey Block Promotion
- ☐ No. 7839—Disposable Pallet
- ☐ No. 7840—Corn Sheil Brochure

(PLEASE PRINT OR TYPE) COUPON NOT VALID AFTER 60 DAYS

Others (list numbers) .....

NAME .....

COMPANY .....

ADDRESS .....

SLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

FIRST CLASS PERMIT No. 2
(Sec. 34.9, P. L. & R.)
MINNEAPOLIS, MINN.

BUSINESS REPLY ENVELOPE
No postage stamp necessary if mailed in the United States

POSTAGE WILL BE PAID BY—

Feedstuffs

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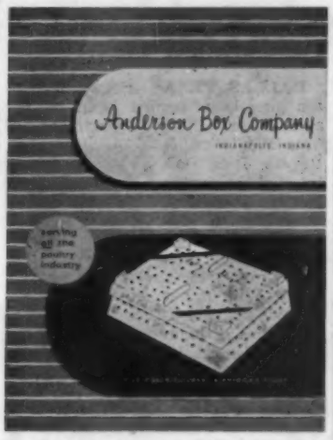
Reader Service Dept. Minneapolis 40, Minn.



washers and "Sta-Good" detergents and egg spray, the company says. Copies of the catalog can be obtained by checking No. 7836 on the coupon and mailing.

Also Available

The following new products have been described in previous issues of Feedstuffs and information about them may still be obtained by jotting the appropriate number of the coupon and forwarding it to Feedstuffs.

No. 7802—Plastic shipping sack, Owens-Illinois Glass Co.

No. 7803—Weighing system brochure, Howe Scale Co.

No. 7804—Square hole nests, James Manufacturing Co.

No. 7805—Antibiotic supplement, S. B. Penick & Co.

No. 7806—Super concentrate plan, Ultra-Life Laboratories.

No. 7807—Copper sulfate block, Peebles' Specialty Products, Western Condensing Co.

No. 7808—Cob bin door, Shelby Manufacturing Co.

No. 7809—Animal health promotion, Chas. Pfizer & Co., Inc.

No. 7810—Water-tube steam boilers, Nebraska Boiler Co., Inc.

No. 7811—Static electricity neutralizer, Statikil, Inc.

No. 7812—Tag handling machine, K&S Metal Products Co.

No. 7813—Swivel-piler, Stephens-Adamson.

No. 7814—Flavor research, Flavor Corporation of America.

No. 7815 — Sifter data, Sprout, Waldron & Co., Inc.

No. 7816—Low beam weigh buggy, Leach Manufacturing Co.

No. 7817—Snap-in keylock bushing, Landers Mill Manufacturing Co.

No. 7818—Forage flavor preservative, Flavor Corporation of America.

No. 7819 — Pig health product, American Cyanamid Co.

No. 7820—Auger molasses mixer, Pacific Molasses Co.

No. 7821—Poultry management book, Merck & Co., Inc.

No. 7822—Product display stand, Douglas Chemical Co.

No. 7823—Package feed mill, Ross Manufacturing Co.

No. 7824—Air, auger system, Productive Acres Manufacturing Co.

No. 7825 — Mill equipment line, Turner-Ross Companies.

No. 7826—Spring promotion plan, Dr. Salsbury's Laboratories.

No. 7827—Scours treatment, Hess & Clark.

No. 7828—Feed grade urea, Monsanto Chemical Co.

No. 7829—Bulk bin, Leach Manufacturing Co.

No. 7830 — Portable conveyor, Sprout, Waldron & Co., Inc.

SPECIFY
Columbia Calcium
COLUMBIA QUARRY CO.
1007 Washington Ave.
ST. LOUIS 1, MO.

Poultry Plant Opens

MURFREESBORO, ARK. — The opening of a poultry processing plant here by Armour & Co. recently has assured continuation of the broiler-raising industry in Pike county. Armour had leased the plant building from the Pike County Poultry Co., which built the processing building.

Joe Slama, who is manager of the Armour plant, explained that at the beginning of operation under new management, 5,000 broilers are being processed each day. He explained that processing will be gradually increased to the point of processing 23,000 broilers every day. One hundred workers are employed in initial operations.

GAME BIRD FEED

SANTA FE, N.M.—A contract for 63 tons of game bird feed for $7,501 has been awarded to Carlsbad Farm Supply for use by the state game department, according to Dante Vaio, purchasing agent.

FORTIFICATION ALONE WON'T DO THE JOB...I NEED *ASSISTANCE, TOO!
1960 PROBLEMS
WELL... FOR FORTIFICATION Plus A PLAN— CALL THE ULTRA-LIFE MAN
PEP

*Assistance — Formula Service, Nutritional Advice, Laboratory Testing, Sales Training and Advertising Your Brand Feeds, are but a few of the "Extra Steps" that help you profit on the Ultra-Life Program.

Why don't you inquire today?

Ultra-Life LABORATORIES, INC.
Main Office and Plant — East St. Louis, Illinois
One of the country's oldest and largest manufacturers of vitamin and trace mineral products.

Strong Scott

"To provide . . .

TOP CUSTOM MILLING SERVICE
YOU NEED THE BEST EQUIPMENT

That's one reason we rely on STRONG-SCOTT," says Willis Sauder, owner of Sauder's Feed Service, Tremont, Illinois.

Willis Sauder (above), owner of Sauder's Feed Service, operates the new mill in the foreground, plus the old mill and the modern feed store.

The Strong-Scott Quick-Change Hammermill operates with 60 HP on the mill and is equipped with a Strong-Scott Feeder-Magnetic-Separator.

A 2 ton (44 x 12) Triple Action Mixer, with facilities for adding molasses, has double air operated gates for fast discharge into a surge bin.

A Strong-Scott 48-inch Power-Flo Separator is used to size pellets and crumbles. A 24-inch Power-Flo is used for scalping incoming ingredients.

In March of 1958, Sauder's Feed Service built a new 21,000 square ft. plant for custom milling. "We were out-growing the old mill, where we could handle only five ton at a time," says Willis, "so we contacted *Hogenson Construction Co.* of Minneapolis to build us an efficient mill with plenty of capacity.

"Our new plant is a push-button, batch-mixing mill and includes storage capacity of 500 tons."

In addition to custom milling, Sauder produces enough brand feeds to keep his 3 bulk trucks busy. "As you can imagine, this puts quite a strain on our mixing and grinding equipment, but the efficiency of our Strong-Scott Hammermill and Triple Action Mixer gives us the capacity we need and a finished product our customers like," added Willis.

THE BIG YEAR FOR NEW EQUIPMENT

The Strong Scott Mfg. Co.

451 Taft Street, N.E.
Minneapolis 13, Minnesota

I would like more information on:
☐ Hammermill ☐ Mixer ☐ Power-Flo Separator
☐ Feeder Magnetic Separator

Firm Name:_____
Title:_____
Address:_____
Signed:_____

Dept. TI-60

Poultry Industry Grows

CHESTERFIELD, S.C.—A million-dollar poultry industry expansion was realized in Chesterfield County during 1959 in spite of adverse marketing conditions generally throughout the year, and a project for this year could skyrocket income by more than $8 million.

Laying hens have been increased from 8,000 to 142,000 under the rural development program, with modern facilities and ultra-modern grading machinery to assure top quality of eggs, says E. C. Wallace, associate county agent.

This has been a major project of the rural development program in the county. The expansion was particularly effective in offsetting some losses due to farm acreage cuts for crops, according to Mr. Wallace.

Chesterfield's poultrymen are producing for the Carolina Egg Federation established early last year with headquarters at Charlotte, N.C.

Van Waters Names Department Head

DALLAS, TEXAS—Crawford Winton has been named head of the agriculture supply department of Van Waters & Rogers, Inc., Dallas, for the southwestern territory, according to Milton L. Warrick, vice president and Texas manager.

Crawford Winton

Mr. Winton has served in various capacities of management and sales for Nichols Seed & Fertilizer Co., Oklahoma City. Mr. Winton is a graduate of Oklahoma State University with a B.S. degree in agriculture.

The southwestern territory is served by Mr. Winton and five sales representatives in the agriculture supply section of Van Waters. The company is opening a new Houston plant, and an additional sales office will be a part of this operation.

Soybean Association Puts Out Blue Book

HUDSON, IOWA—The nationwide and worldwide expansion of the soybean crop and industry is reflected by the 1960 edition of the Soybean Blue Book out recently, according to George M. Strayer, executive vice president of the American Soybean Assn. The Blue Book, which is the yearbook and annual directory of the soybean industry, is published by the soybean association.

Five new soybean processing plants and a large number of plant expansions and modernizations, are listed in the 1960 Blue Book. The book also lists 13 plants processing soybeans in foreign countries that were not listed in 1959.

The new soybean processing plants that were built in 1959 and are listed for the first time in the 1960 Blue Book are: Cargill, Inc., Norfolk, Va.; Southern Soya Corp., Estill, S.C.; Hartsville Oil Mill, Hartsville, S.C.; Arkansas Grain Corp., Stuttgart, Ark., and Cooperative Processing Assn., Van Buren, Ark.

The book is available at $3 per copy from the American Soybean Assn., Hudson.

Dealer Forums Held

MINNEAPOLIS—Feed dealers in Minnesota, Wisconsin, North and South Dakota studied ways to meet the challenge of 1960 at regional dealer forums in February.

The forums, sponsored by Peavey Feed Mills, Minneapolis, were held at Rice Lake, Wis.; St. Peter, Minn.; Alexandria, Minn.; Huron, S.D.; Bismarck, N.D., and DePere, Wis.

"We must think ahead, plan ahead and work harder than ever before to keep ahead," noted J. R. Lindell, sales manager, as he opened the forums. Dealers were urged to take up the challenge of 1960 through better products, services, promotion and marketing arrangements and to use their time, talents and sales tools more effectively to assure the growth of their feeders and themselves.

test shows

Whitmoyer KEMITRACIN ANTIBIOTIC SUPERIOR

read these excerpts from the test data

1. "A combination of bacitracin methylene disalicylate* and penicillin produced the greatest weight gains and best feed conversion.

2. "Bacitracin methylene disalicylate* was slightly superior to zinc bacitracin in stimulating growth and significantly better in feed efficiency.

3. "The weight gain response to zinc bacitracin was not as good as the response to bacitracin methylene disalicylate*.

4. "Penicillin gave the poorest response of all antibiotics tested."

*The antibiotic content of KEMITRACIN is bacitracin methylene disalicylate. Whitmoyer KEM-PEN-10 is a combination of KEMITRACIN and penicillin.

Get the Detailed W. A. R. F. report
Write Dept. FS-3

KEMITRACIN COSTS LESS TOO

Whitmoyer LABORATORIES INC.
Manufacturing Chemists
MYERSTOWN, PENNA., U. S. A.

WAREHOUSE STOCKS AVAILABLE AT THESE AND OTHER CONVENIENT U.S. AND FOREIGN LOCATIONS:
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Serving Mills & Breeders for Over 30 Years
DEVOLD
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Devold Vitamin A Oils
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Contests?

NICHOLS 108s Win 'Em!

California Random Sample Test

- Highest eviscerated yield— R. Cornish x Nichols 108 74.7%
- Lowest mortality and condemnation of birds—R. Cornish x Nichols 108 0%

Arkansas Meat Performance Broiler Test

No. 2A —1958 Highest eviscerated percent of live weight — Vantress x Nichols 108 71%

No. 3A —1959 Highest score of uniformity (males & females)— Peterson x Nichols 108 91.27

(We'll be glad to show you the complete results of these and many other tests)

Grow-out Profits?

YOU Win 'Em!

Look at this dealer's records (all Nichols ♂)

Grower	A	B	C	D	E	
Started:	29900	3400	3000	10500	13000	59,800
Sold: (Nov. 1959)	29934	3390	3024	10544	13055	59,947
Age:	10 wks 3 days	10 wks 6 days	10 wks 4 days	10 wks 3 days	10 wks 2 days	
Avg. wt:	4.20	4.63	4.33	4.24	4.09	
Feed conv:	2.39	2.54	2.38	2.40	2.29	
Conv. U/wt:	1.81	2.09	1.95	1.84	1.80	

Feed cost per lb. of meat (based on 3 lb. bird & 2.40 feed conversion) —.0869¢

FOR PROFIT AT EVERY LEVEL . . .

FLOCKOWNER • HATCHERY • GROWER • PROCESSOR

BE SURE THE FEMALE SIDE IS NICHOLS

RESEARCH MAKES THEM BETTER — NICHOLS

Nichols Incorporated

EXETER, NEW HAMPSHIRE

Arkansas Feed Men See Sale Rise With Increased Dairying

By DAVID MARTIN
Feedstuffs Special Writer

HARRISON, ARK.—Because of a bright outlook for increased dairying in this area, feed men are looking forward to better sales in coming months.

Agricultural officials said there appears to be a local trend away from beef production and an expansion of dairy herds. The apparent overproduction and large build up of beef supplies were given as the reason for the change.

One feed dealer said he has already noted an increase in the sales of prepared dairy feeds. He said he expects business to become better within a few weeks.

Another dealer pointed to an expansion of dairy herds, saying a number of new grade A and grade C dairies are being established.

In this region, increased dairying means bigger feed sales. Many farmers switched to beef production when prices started up four years ago. Now, they are returning to dairy farming — something that offers a more stable income.

Generally, farmers in this North Arkansas area do not grow their grain requirements. This means grain must be purchased, offering a good opportunity for feed dealers.

Beef herds, maintained mostly on roughages and protein concentrates, are being reduced. And stocker steer operators are buying fewer cattle than in recent years. This opens up new revenue potential.

Feed men here generally look for hog operations to help build sales volume in coming months. While hogs were cheap, farmers were slow to purchase mixed feeds, one feed dealer said.

"In fact," he recalled, "I quit pushing mixed feeds and concentrated on protein supplement and corn.

"Now I am having more calls for mixed rations, and I look for business to be better if hog prices increase."

This feed store operator said he has heard a number of inquiries for swine breeding stock, but that foundation gilts and boars are in short supply in the area.

"I hope hog prices go up," he added. "It sure will help my sales."

Another dealer agreed that higher prices will bring increased sales. He said he has had a few requests for information on pig parlors. A number of parlors in Arkansas were shut down when hog prices dropped to unprofitable lows. Operators generally agree that hogs must bring at least $14 cwt. to make parlor operations profitable.

FIRM CHANGES HANDS

SCOTTSDALE, ARIZ.—New owner of the Ranchers Feed & Supply here is John R. Hicks, Sr., according to ownership transfer listings.

How to Reduce Fat On Hogs Reported

COLLEGE PARK, MD.—Dr. Edgar P. Young, reporting on the use of reduced energy rations to control the amount of fat on market hogs, said here at the University of Maryland's annual Swine Field Day that the way to lower the energy content of the ration is to hold down the amount of corn fed.

Using 60 pigs divided into three lots, Dr. Young of Maryland's animal husbandry department, full fed one group on a 15% protein ration up to 125 lb., then switched to a 12% ration. The other two lots received rations supplying the same amount of protein, minerals and vitamins, but the energy content of the rations was reduced by 20% for one lot and 30% for the other. This was done by removing some of the corn.

Pigs on the energy reduced ration were also hand fed to control the amount of energy consumed.

Pigs on both levels of reduced energy showed a half pound reduction in total feed required per pound of gain. TDN (total digestible nutrients) requirements were also lowered about .4 lb. of TDN, Dr. Young reported.

Carcass data showed that, on the basis of feed required per pound of lean cuts produced, there was a feed reduction of 1½ lb. on the reduced energy ration lots. TDN required was reduced by about 1.2 lb.

All of the pigs on test yielded approximately the same total amount of lean cuts. However, on a live weight basis, the pigs on the 20% less energy ration weighed 20 lb. lighter. Pigs getting 30% less energy produced less total lean cuts. On the basis of protein required, the 30% pigs were inefficient.

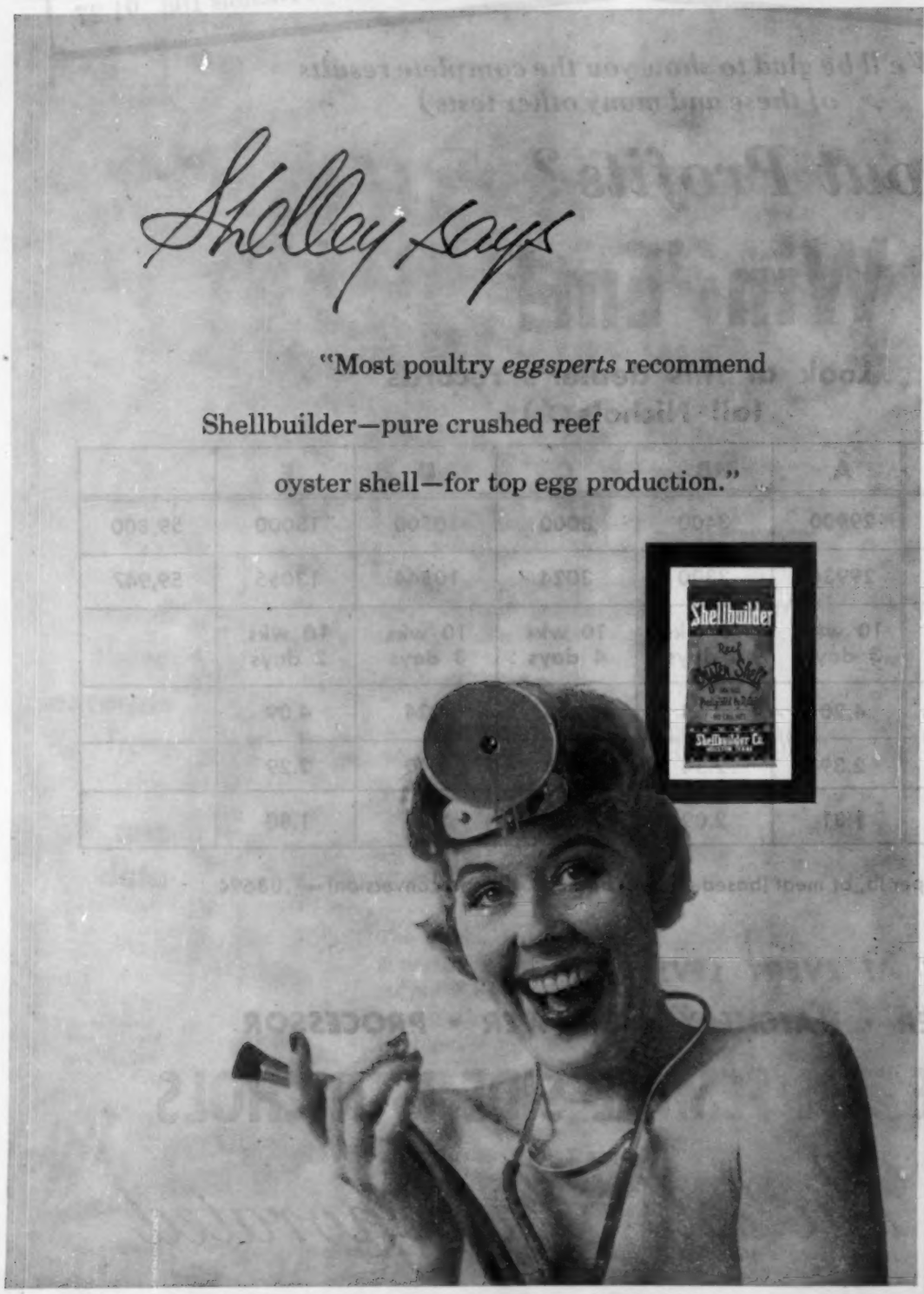
"It should be kept in mind," Dr. Young said, "that these pigs all received the same amount of protein. They were fed for 90 days, and were then slaughtered at that weight. Previous studies of this kind have been done elsewhere, but the pigs were slaughtered at a certain weight rather than at a certain age. Our work indicates that pigs on the 20% reduced energy ration produced the same amount of lean meat with less feed for the same length of feeding period. The full fed group were fed about 20% more feed—120 lb. more corn—at 3¢ lb., to produce more fat worth 2¢ lb."

Cotton Producers Pick Purchasing Assistant

ATLANTA, GA.—Promotion of C. W. Paris to assistant general manager for purchasing of the Cotton Producers Assn. has been announced by D. W. Brooks, general manager. Mr. Paris formerly was director of the purchasing and poultry divisions.

Mr. Paris joined CPA as an accounting clerk in the cotton division in 1934. He was advanced to head of fertilizer distribution, then was made director of the purchasing division. He later assumed direction of both the purchasing and poultry divisions.

He is a member of a seven-man poultry study committee studying the possibility of organizing a National Poultry Federation of Cooperatives.



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YEAST CULTURES
For 30 Years a Proven Source of Unidentified Growth Factors, Digestive Enzymes and B Vitamins. Better Assimilation—Better Feeds. Write
WESTERN YEAST COMPANY
Chillicothe, Illinois

Save with NEW WONDERWALLS!

During a controlled test to determine possible savings in bag costs, 53 companies moved 57,263 tons of feed in 2,290,522 new WONDERWALL bags.

Typical saving: $3.85 per M bags and reduced bag breakage as well.

WONDERWALLS save users money because they're made with Kraftsman Clupak*, the extra tough paper with the built-in *stretch*... pioneered by West Virginia. Because less paper is needed, substantial savings in bag costs naturally follow.

When it's a WONDERWALL, it withstands punishment that breaks ordinary multiwalls, and it also packs faster, handles easier, stacks better.

See how WONDERWALLS can cut *your* direct bag cost and reduce bag breakage too. For full information, write Multiwall Bag Division, West Virginia Pulp and Paper Company, 230 Park Avenue, New York 17, N. Y., or 1400 Annunciation Street, New Orleans 13, La.

**Clupak Inc.'s trademark for extensible paper, manufactured under its authority.*

West Virginia
Pulp and Paper

Louisiana Researchers Develop Antibiotic Silage Preservative

BATON ROUGE, LA.—Researchers at the Louisiana State University Agricultural Experiment Station recently issued a report on their work in developing an antibiotic silage preservative which they report is "less expensive" than other products, and is "easier to handle and as reliable."

Dr. Louis L. Rusoff, director of the project, says the use of zinc bacitracin as an antibiotic preservative has been tested for two years with several grasses, oats and clover "and has proved itself an almost foolproof method of preservation." He said the preservative produces silage "with a sweet smell and of good quality and acidity."

Here are some of the preservative's advantages listed by Dr. Rusoff:

1. "Farmers don't have to worry about weather, moisture in the grass or careful packing," Dr. Rusoff said. "Grass can be cut in wet or dry weather and blown into silos immediately, even if damp."

2. According to research results, silage treated with zinc bacitracin doesn't affect the odor, quality or quantity of milk. Dr. Rusoff said the antibiotic eliminates itself during the preservation process and is gone when the silage is ready for feeding. The new preservative did not affect the flavor or quality of milk in a 63-day feeding trial with milking cows, Dr. Rusoff reported. And, in palatability tests with steers, the cattle preferred the antibiotic-treated silage over both untreated silage and that preserved with other materials, he said.

3. "The preservative is non-irritating and easily added to forage through a hopper, either when it is cut or when blown into silos," Dr. Rusoff reported. "There are no harmful effects from handling the dry preservative or from eating or handling the preserved silage. It produces desired amounts of lactic acid but only low amounts of undesirable butyric acid."

4. Chemical analyses of antibiotic-treated silages show protein, fat, ash, nitrogen-free extract and fiber content to be similar to that produced with molasses or sodium metabisulfite, other common preservatives, Dr. Rusoff said.

Dr. Rusoff believes that the antibiotic acts by inhibiting the protein-splitting bacteria and favoring the lactic acid-producing bacteria, creating favorable conditions for good silage preservation.

Commercial Solvents Corp., Terre Haute, Ind., which partially supported the research on the preservative developed at Louisiana State, has started to market the product the report noted. Dr. Rusoff said 5 gm. of zinc bacitracin per 10 lb. of soybean meal carrier, enough to preserve a ton of silage, is being sold dry in bags. The product is available in ton quantities.

PENB Names Woman To Aid Egg Promotion

CHICAGO — Bernice Stilwell has joined the Poultry and Egg National Board as assistant director of home economics for eggs, according to an announcement by Lloyd H. Geil, general manager.

Bernice Stilwell

She will work under the direction of Kathryn Bele Niles, PENB home economics director, to create and test new uses and recipes for using eggs more often in homes and mass feeding establishments. She also will assist in channeling this information and facts on the food value of eggs to media outlets.

Previously, Miss Stilwell was with Westinghouse Electric Corp. in several home economist capacities, with whom she organized and promoted food events. Her experience includes nutrition instruction with the American Red Cross. She conducted nutrition classes for adult and high school groups.

Before joining PENB, Miss Stilwell was factory-field home economist for the home economics institute of Westinghouse Electric Corp. Prior to this, she was regional home economist for Westinghouse.

She received her B.S. degree in home economics from Utah State University.

Importer Says Europe Cooler to U.S. Markets

CHARITON, IOWA — "Booming" European industry still looks with favor upon U.S. markets, but not to the "red carpet" extent it had in recent years, says an official of the Bob Stone Cordage Co., Chariton, who recently visited some 40 mills and factories in four countries on a recent European business trip.

The official, Edmond M. Stone, observes that U.S. importers are finding their business less sought after than in the days when Europe was struggling for prestige in a post-war world. Now, he says, job opportunities there are plentiful, companies are operating with order backlogs and "consumer buying resembles the pace in America."

Mr. Stone predicts the excitement in Europe over expanding business probably will reflect itself in prices being paid by his firm and others for twine, rope and steel products.

Bob Stone Cordage Co. is an importer of binder and baler twine, hemp and barbed wire.

Egg Grading Law Passed in Kentucky

FRANKFORT, KY.—A bill designed to eliminate ungraded eggs from the Kentucky market was passed recently by the Senate. The bill requires strict grading of eggs in the state.

Proponents of the bill say that it will help to end the dumping of ungraded eggs from other states in Kentucky also.

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Scientists Achieve Breakthrough On Nitrogen Fixing

WILMINGTON, DEL.—A scientific breakthrough that opens the door to understanding a major life process has been achieved in the DuPont Co.'s fundamental research work, according to a recent announcement.

For the first time, researchers have duplicated in a test tube the reaction nature uses within a living cell to create the nitrogen compounds without which no life can exist.

They have discovered a technique, long sought by scientists around the world, by which nitrogen-fixing chemicals can be separated from bacteria and stimulated to perform their function outside the bacterial cell. Lacking such a technique, scientists have been frustrated in their research on this vital natural process.

The nitrogen gas of the atmosphere is so unreactive that the chemist must use extremely high temperatures and pressures to "fix" it—convert it to chemical compounds which can be used by plants. It has long been known that some bacteria are capable of fixing elementary nitrogen of the atmosphere at ordinary temperatures but how these bacteria do it has remained a nagging mystery.

A preliminary description of the findings will appear in Biochemica et Biophysica Acta, an international scientific journal. A detailed discussion will be presented by the Du Pont researchers in April at the Chicago meeting of the Federation of American Societies for Experimental Biology.

Most fixed nitrogen used by plants and the animals feeding on them is produced by certain bacteria and algae, either independently or in association with plants like peas and clover. These microscopic one-celled organisms in the soil or water carry out chemical reactions which chemists today can match only in complex industrial equipment, using extremes of heat and pressure.

The DuPont research men discovered that nitrogen fixation enzymes can be extracted from bacteria if strict requirements are met. First, the living cells of selected bacteria are broken open and the enzymes extracted under precisely controlled conditions to avoid damaging the delicate enzyme system. Second, a chemical fuel—pyruvic acid—is used to provide the necessary energy for the nitrogen-fixing reaction. Extracted enzymes then consistently carry out the process outside the cell bodies.

The discovery means that biological nitrogen fixation can now be observed in detail and should enable scientists to analyze the enzyme chemistry within the living cell.

The Du Pont researchers also demonstrated that in bacteria of the type studied, the end product of the fixation process is ammonia. This observation confirms some previous theories and will help in future work.

Latest Rulings in Labor Relations

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ARBITRATOR'S DECISION
NO. COMPANY DOES NOT HAVE TO GIVE UNION EMPLOYEES SAME BENEFITS AS NON-UNION
Based on a 1959 Connecticut Decision

New England Dairy Meeting Plans Set

BOSTON, MASS. — The program for the New England Dairy Feed Conference to be held April 21 at the Hotel Lenox here has been announced.

Feature of the morning session will be talks by four college professors. Dr. C. F. Helmboldt, head of the veterinary science department at the University of Connecticut, will speak on "Ketosis, Cause and Treatment." Dr. B. R. Poulton, head of the animal science department at the University of Maine, and Dr. J. Murray Elliot, dairy and animal science department at the University of Massachusetts, will combine in a discussion of "Concentrate and Roughage Ratios for Dairy Cattle." Dr. Niels Rorholm, head of the department of agricultural economics, University of Rhode Island, will speak on "Practical Approach to Dairy Farm Business."

Dr. James Cobble, University of Rhode Island, will lead off the afternoon session with a talk on "Milk Residues and Medicated Feeds." Dr. A. M. Smith, University of Vermont, and Dr. S. N. Gaunt, University of Massachusetts, will follow with a discussion of "Total Digestible Nutrients vs. Estimated Net Energy." Kay Andrus, dairy farmer from Ashford, Conn., will speak on "Herd vs. Individual Feeding."

A panel discussion will include the afternoon speakers and Dr. Harry Keener, director of research for the experiment station, University of New Hampshire, with Dr. Smith as panel leader.

There will be an exhibit section, including publications on feeding from the New England colleges. There also will be a luncheon. Reservations will be needed for the luncheon. Those who want reservations should make them with John McIntyre, Mackenzie & Winslow, Inc., Fall River, Mass., by April 18. Registration fee is $2.

The committee planning the conference includes Win Pierce, Wirthmore Feeds, Waltham, Mass.; Mr. McIntyre; H. G. Savage, Purina Feeds, Bennington, Vt.; H. M. Lockwood, Lockwood Nutrition, Boston; Dr. Poulton; Dr. Smith; Dr. Robert Benson, University of Connecticut, and Dr. Gaunt, chairman.

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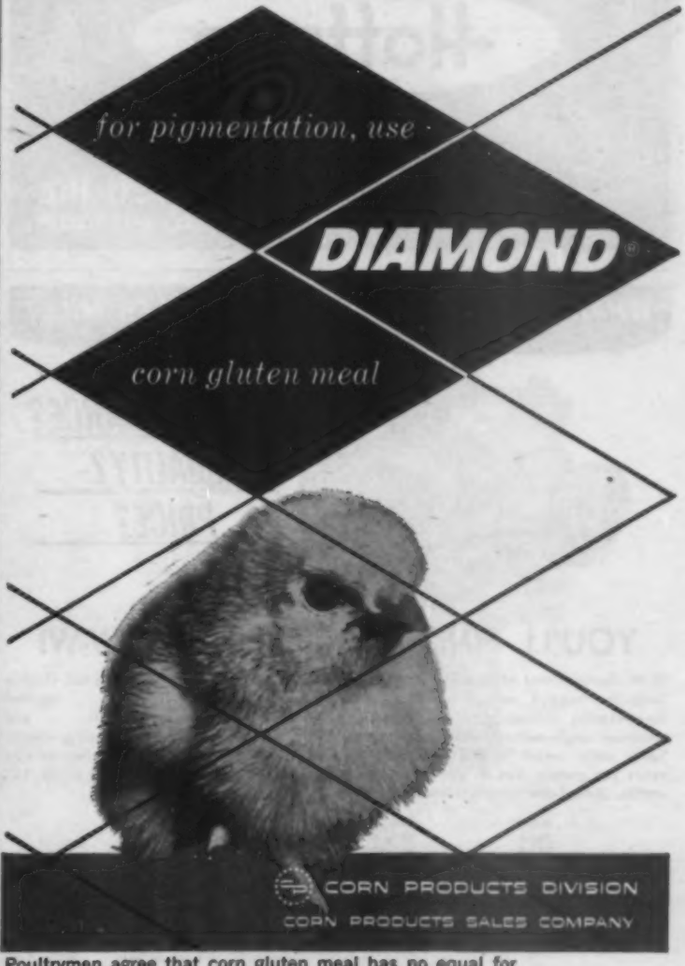

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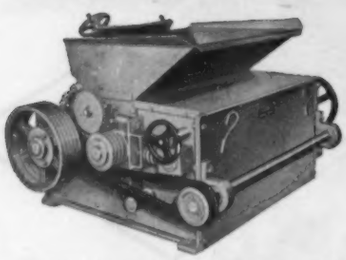

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POTENTIATION OF ANTIBIOTICS

EDITOR'S NOTE: The accompanying article on potentiation of antibiotics is from the Nutrition News Bulletin, a publication of the Ralston Purina Co., St. Louis. It is an excerpt from a report on antibiotics.

"Potentiation" is the term applied to increases in the concentration of an antibiotic in the blood and tissues of animals by adjusting the composition of the ration. Research in this field has been confined almost entirely to the tetracyclines: chlortetracycline (Aureomycin); oxytetracycline (Terramycin), and tetracycline itself. Other commonly used antibiotics do not respond to potentiation by ration adjustments.

Potentiation of the tetracyclines shows promise of application in the mass therapeutic medication of poultry and perhaps to a lesser extent in swine. Ruminants do not respond, at least not to a significant extent.

The methods for potentiating the tetracyclines are based on the discovery that their solubility in the digestive tract and their absorption into the blood stream are inhibited by the presence of bivalent metals, including calcium, magnesium, iron, copper, manganese and zinc. It follows that the tetracyclines can be "potentiated" by decreasing the levels of bivalent metals in the ration or by adding to the ration certain sequestering (chelating) agents which inactivate them after they reach the digestive tract. The latter method indicates that the metals exert their inhibiting effects against the antibiotics when present as positively charged metallic ions.

Of the inhibiting metals commonly present in the digestive tract, calcium is by far the most abundant, due to the use of calcium carbonate and calcium phosphate as feed additives. Normally, around 65% of the total calcium intake of growing swine and poultry is derived from these two minerals, and for laying fowl, around 80%. Adjustment of the magnesium level in feeds is impractical since it is not derived from added minerals and the concentrations of iron, copper, manganese and zinc are normally too small to be of any significance. As affecting potentiation by regulating metallic element intake, calcium is the only metal showing practical significance. Potentiation by deactivating metallic ions with chelating agents is practically applicable to all six of the inhibiting metals.

Adjusting Calcium

The method for potentiating the tetracyclines by adjusting the calcium content of the ration was discovered in 1954 and patented by Kiser and Roberts in 1957 (1). This method is limited by the necessity for supplying efficient calcium to meet the animal's requirement for growth, bone formation and egg shells. This requirement is affected to some extent by the level of phosphorus in the ration and by the mineral sources from which calcium and phosphorus are derived.

Experimental work reported by Pensack et al. (1959) (2) indicates that the minimum calcium and phosphorus requirements for optimum growth and strong bones in poultry starting and growing rations are .8% calcium and .6% phosphorus for chickens, and 1% calcium and .8% phosphorus for turkeys. These levels are lower than the widely accepted levels recommended by the National Research Council.

Stocksted et al. (1959) (3) have shown that calcium sulfate and phosphoric acid (or monosodium phosphate) are satisfactory substitutes in poultry rations for the commonly used calcium carbonate and calcium phosphate, and that the substitution promotes a higher degree of potentiation. However, the use of calcium sulfate is limited by its tendency to promote wet droppings and, above a certain level, to depress growth.

It has been shown that, for a short period of time, the calcium and phosphorus levels in poultry starting and growing rations can be reduced to around .40 or less without permament detrimental effects on growth or bone development. This does not apply to laying rations, since any reduction in the calcium content of the ration is quickly reflected in poor egg shell structure and decreased rate of lay. Continual feeding for as little as two days seriously affects egg production and shell quality.

Potentiation of the broad spectrum antibiotics through the use of metal ion deactivators as feed additives was first accomplished by Eisner et al. (1953) (4). Over 200 such substances have been evaluated and, although some potentiated Aureomycin as much as tenfold, none has thus far found practical application in the mass medication of farm animals. A patent issued to Kent and Petersen (1958) (5) and a paper by Petersen (1958) (6) indicates that terephthalic acid may be suitable for this purpose. However, its use as a feed additive has not been cleared by the U.S. Food and Drug Administration pending the submission of data on its carry-over into animal tissues and proof that the amount of carry-over, if any, is nontoxic to humans. It pro-

TABLE 1. Potentiating Effects of Terephthalic Acid on Aureomycin in Chick Ration
Purina Research Laboratory

Aureomycin in feed (gm. per ton)	TPA in feed (lb. per ton)	Aureomycin in blood serum of chicks (mcg. per ml.)
0	0	0
10	0	0
10	2	0
10	4	0
50	0	0
50	2	.01
50	4	.02
50	8	.03
200	0	.03

TABLE 2. Effect of Source of Calcium on Chick Blood Serum Levels With and Without Terephthalic Acid
(10th Annual Feed Symposium 1959—American Cyanamid Co.)

Source of added calcium	% Calcium in ration	% TPA in ration	Concentration of Aureomycin in chick blood serum (mcg. per ml.)
$CaCO_3$	.4	0	.16
$CaSO_4$	.4	0	.46
$CaCO_3$	.4	.5	.37
$CaSO_4$	.4	.5	.96
$CaCO_3$	1.1	0	.19
$CaSO_4$	1.1	0	.32
$CaCO_3$	1.1	.5	.46
$CaSO_4$	1.1	.5	.62
$CaCO_3$	1.4	0	.16
$CaSO_4$	1.4	.5	.34
$CaCO_3$	1.4	0	.37
$CaSO_4$	1.4	.5	.73

Aureomycin in ration—200 mg. per kg. (166 gm. per ton).

Note that calcium derived from calcium sulphate increased the blood serum concentration of the antibiotic approximately two fold over a like amount of calcium from calcium carbonate. In addition, TPA further enhanced the concentration two fold, or a total of a four fold increase of the practical diet containing calcium carbonate and no terephthalic acid.

TABLE 3. Influence of Calcium, Phosphorus and Terephthalic Acid Levels on Concentration of Tetracycline Antibiotics in Chick Blood Serum
(Price, Zolli and Hare, Poultry Science, 38:235, 1959)

Antibiotic in feed (gm. per ton)	% Calcium in feed	% Phosphorus in feed	% T.P.A. in feed	Concentration of antibiotic in feed (micrograms per milliliter) Aureomycin	Terramycin	Tetracycline
100	1.18	.8	0	.036	.15	
100	1.18	.8	.375	.092	.201	
200	1.18	.8	0	.065	.193	
200	1.18	.8	.375	.232	.373	
100	.18	.8	0	.130	.237	
100	.18	.8	.5	.209	.400	
200	.18	.8	0	.260	.433	
200	.18	.8	.5	.484	.668	
250	2.25	.55	0	.04	.15	
250	2.25	.55	.5	.104	.171	
500	2.25	.55	0	.184	.178	
500	2.25	.55	.5	.248	.304	
1000	1.36	.7	0	.252	.592	
1000	1.36	.7	.5	.480	1.190	
1000	.12	.7	0	.540	1.17	
1000	.12	.7	.5	.980	2.78	
1000	1.36	.7	0	...	.664	.381
1000	1.36	.7	.5	...	1.174	.877
1000	.12	.7	0	...	1.628	.890
1000	.12	.7	.5	...	3.179	.965

duces maximum potentiation at a level of 8-10 lb. per ton of feed and, at this level, is apparently nontoxic to poultry and does not produce other known undesirable side effects. It produces its potentiating effects, in part at least, by decreasing the speed of elimination of the antibiotic through the urine rather than by deactivating calcium ions.

Potentiation Illustrated

Tables 1, 2 and 3 illustrate the degree of potentiation that can be obtained by adjustments in the calcium and phosphorus feed levels, with and without terephthalic acid.

Research on the application of antibiotic potentiation to poultry diseases has been directed primarily towards the prevention and control of cecal coccidiosis, infectious synovitis and chronic respiratory disease (CRD).

Cecal Coccidiosis—Petersen (Arkansas Agricultural Experiment Station Report Series 74, 1958) has shown that the effectiveness of Aureomycin against cecal coccidiosis was increased fourfold by including .5% TPA in the ration. Waletzky and Burden (10th Annual Feed Symposium 1959—American Cyanamid Co.) have shown that the effectiveness of Aureomycin against E. tenella can be significantly potentiated by reducing the calcium level in the ration or by substituting calcium sulfate for supplementary calcium carbonate.

Infectious Synovitis—Shelton and Olson at the West Virginia Station (Avian Diseases 2:450-455, 1958) have shown that potentiation of Aureomycin with TPA in the feed reduced the minimum requirement for effective prevention of infectious synovitis from 100 gm. per ton to only 12.5 gm. per ton. Marked enhancement in control of this disease by Terramycin was achieved by the addition of TPA and reduction of dietary calcium as reported by Price and Zolli (Avian Diseases 3:135-158, 1959).

Chronic Respiratory Disease (CRD)—Olson et al. (Avian Diseases 3:433, 451, 1959) found that TPA potentiated Aureomycin from two to three times in its activity against CRD.

Studies on the potentiation of Aureomycin in swine were reported by Eggert and Elliot (10th Annual Feed Symposium—American Cyanamid Co., 1959) and summarized as follows:

1. The blood serum levels of Aureomycin are increased by feeding TPA, by feeding rations low in calcium and by substituting calcium sulphate and phosphoric acid for calcium carbonate and calcium phosphate as sources of calcium and phosphorus for growth and bone formation.

2. Calcium from calcium sulphate is as equally available for growth and bone formation as that from calcium carbonate and calcium phosphate.

3. Terephthalic acid up to .5% in the ration is safe for growing and finishing swine over extended periods of time.

4. There are indications that very young early weaned pigs may not grow as fast on rations containing terephthalic acid.

Summary

The tetracycline antibiotics are poorly absorbed from the digestive tract of poultry and swine. Usually less than 2% of the amounts ingested are absorbed into the blood and body tissues, due in part to a blocking effect of bivalent metals of which calcium is normally by far the most abundant.

The concentration of the tetracyclines in the blood serum of poultry and swine can be potentiated or increased by reducing the percentage of calcium in the ration and further increased by substituting calcium sulphate and a soluble sodium phosphate for the commonly used calcium carbonate and calcium phosphates. Potentiation by this method is limited by the necessity of supplying enough calcium to meet the animal's requirement. Within this limitation, the method can be used to potentiate the antibiotic level more than twofold.

More effective potentiation, up to tenfold, can be obtained through the use of certain sequestering (chelating) agents. However, none of these have thus far found practical application. The inhibiting action of calcium on antibiotic absorption can be prevented by the use of terephthalic acid as a feed additive. However, its use in feeds has not thus far been cleared by the Food and Drug Administration.

Potentiation shows promise of application in the mass medication of poultry and swine with feeds containing the tetracyclines. Without potentiation, their effectiveness against systemic diseases is sharply limited due to their poor absorption into the blood stream. The most effective results can be obtained through intramuscular or subcutaneous administration of the antibiotic.

♥ ♥

REFERENCES

(1) U.S. Patent No. 2806789, assigned to Chas. Pfizer & Co.

(2) 48th Annual Meeting, Poultry Science Assoc.

(3) 48th Annual Meeting, Poultry Science Assoc.

(4) Journal of Expt. Pharm. & Ther., 108:442-449, 1953.

(5) U.S. Pat. No. 2855340.

(6) Arkansas Agr. Expt. Sta. Report Series 74, 1958.

IOWA ELEVATOR EXPANDS

RALSTON, IOWA—The Farmers Cooperative Assn., Ralston, Iowa, will build a 1 million bushel additional storage capacity at Jefferson. This will double the capacity of the Jefferson plant. Construction will start about April 15. The 107 ft. wide by 364 ft. long Behlen Steel Building will be erected by the Shriver-Van Horn Co., Jefferson.

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Grain Man Raps Delaney Clause

KANSAS CITY — "The Delaney amendment is a bad law." This was the charge made by Joe Gregg, Morrison-Gregg-Mitchell Grain Co., Kansas City, chairman of the Sanitation Committee of the Grain & Feed Dealers National Assn., before the committee during the convention.

Under provisions of this law, Mr. Gregg continued, grain handlers could be hit extremely hard without warning if: (1) Government scientists ever find that grain fumigants could cause cancer in rats, and (2) a residue of such grain fumigants should ever be detected in grain. Under the Delaney amendment, no tolerance is established. If there is a detectable residue of a substance which federal scientists have determined is a carcinogen, the entire mass of grain involved could not be marketed for human consumption or for livestock feed, Mr. Gregg said.

"Something will have to be done to make this law more reasonable," Mr. Gregg stated. He urged those at the session to obtain copies of a talk given in the House of Representatives recently by Rep. Henry A. Dixon (R., Utah). In this talk, Rep. Dixon questioned the wisdom of the Delaney clause and said it was causing financial losses to farmers and others and was causing chemical companies to shift research from agricultural to other chemicals. Rep. Dixon is a former president of Utah State Agricultural College. Mr. Gregg said that grain men should be armed with this information so that they can acquaint their legislators with these facts.

To comply fully with government regulations under the Miller Law, Mr. Gregg urged grain men to require every supplier of a chemical to provide a letter saying that the product is registered with and approved by the U.S. Department of Agriculture, and also containing the correct instructions for using the chemical. The committee recently put out a list of approved chemicals to all GFDNA members.

Mr. Gregg told the group that he would continue his close contact with Food & Drug Administration in an effort to keep the membership informed. "We have to know where we stand regarding the use of chemicals since we are faced with an ever increasing use of chemicals in our industry."

Broiler Price Study Report Published

NEWARK, DEL. — A booklet on "The Daily Spread in Prices Among Broiler Flocks Sold on the Eastern Shore Poultry Growers' Exchange" has been published by the University of Delaware Agricultural Experiment Station.

The booklet reports on a study to determine which factors were responsible for the fact that broiler flocks are sold for different prices on each market day.

Data from the daily sales reports of the exchange covering 50,438 broiler flocks for the period July 1, 1953 to July 1, 1958, were used to study the effect of breed of broiler flock, age of flock, time limit within which buyer must pick up birds, identity of buyer, identity of seller, size of flock and day of week on premiums or discounts received for broiler flocks. Average weight, quality, meat, finish and health were added for the period July 1, 1956, to July 1, 1958, since the exchange inspector's report became available.

FEEDERS TIGHT WITH PROTEIN, SAYS PACKER

KANSAS CITY—"You feeders are getting too tight with your protein these days," Lloyd Needham, general manager of the Sioux City (Iowa) Dressed Beef Packing Plant and president of the firm's Dressed Pork Co., told an industry conference group at the recent convention of the National Livestock Feeders Assn.

Mr. Needham, who also is vice president of the National Independent Packers Assn., said, "You're still riding along on that half-pound to a pound a day level, when you should get it up more in line with the rest of the improved ration you're feeding these days. You can't expect faster gains and better feed efficiency unless you do.

"This is showing up in the animals we get," said Mr. Needham. "For some reason, our cattle aren't cutting out as well today as they did five years ago. I don't know that stilbestrol is really at fault on any of this, but I do know we're not able to buy and be as sure of what we're getting as we once were."

New England District Manager Is Appointed

CLIFTON, N.J.—The appointment of Richard Gruber as New England district manager, has been announced by Richardson Scale Co., engineer and manufacturer of automatic weighing and proportioning equipment and controls.

Richard Gruber

Prior to his new appointment, Mr. Gruber was a sales engineer with headquarters in the Cleveland area.

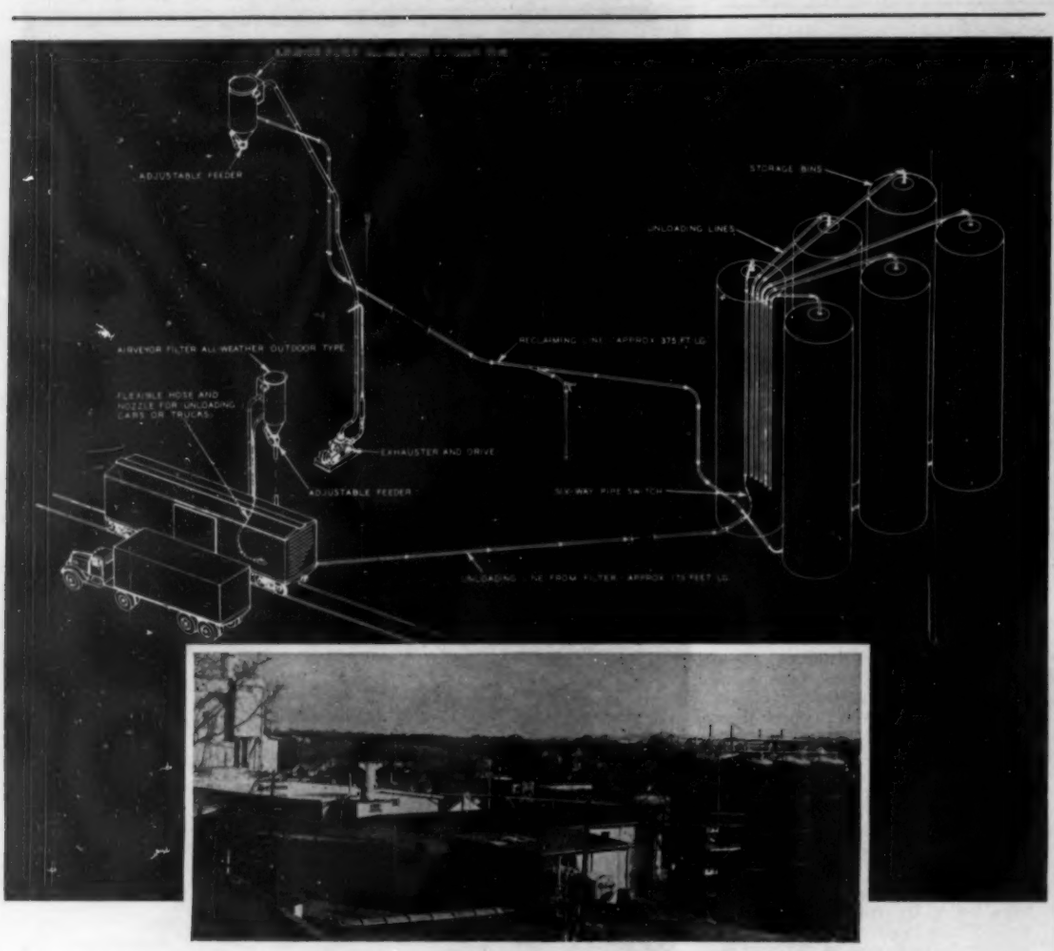
The New England district office is at West Boylston, Mass.

Feed Tonnage Off In North Carolina

RALEIGH, N.C.—Shipments of feed in North Carolina July through January, 1959-60, were down about 4½% in tonnage from the total for the same period a year earlier, according to a report from L. Y. Ballentine, commissioner of the state's department of agriculture.

North Carolina's feed tonnage report shows that the total for July-January, 1959-60, was 867,507 tons, compared with 909,858 tons for the same months of 1958-59.

January's total feed tonnage for the state was 121,884, a reduction from that recorded in the same month a year earlier.



The arithmetic of materials handling

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Results—with this new equipment, one mill produces enough feed to allow Brown to use the other three mills for storage and distribution. Production is still increasing and handling costs have been cut up to $3.00 a ton.

In addition to increasing storage space, and reducing unloading time and costs, these systems are self-cleaning, thus minimizing contamination.

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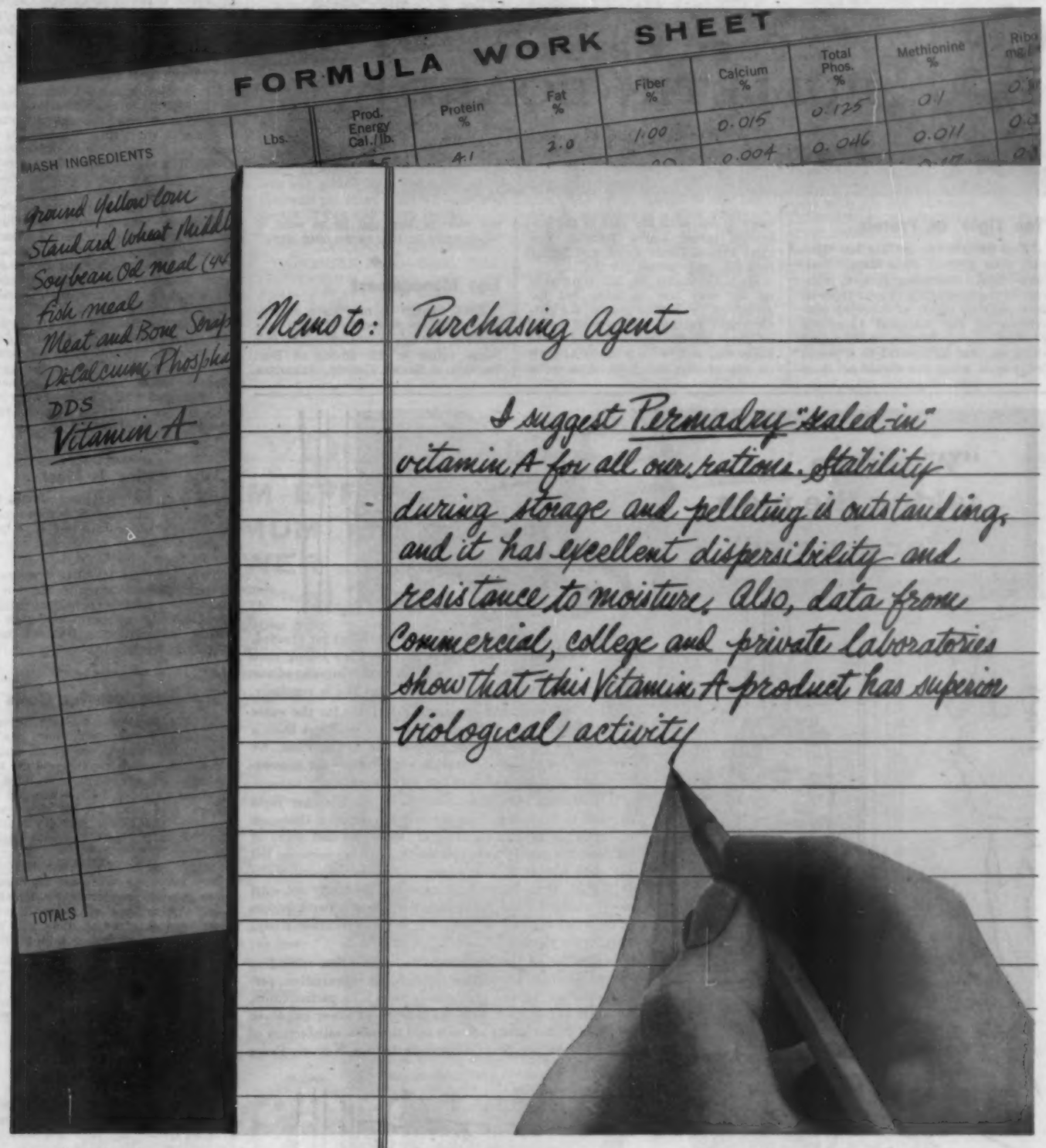

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Literature supplied on request

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'Too Tight' on Protein

"You feeders are getting too tight with your protein these days," cautioned Lloyd Needham, general manager of the Sioux City (Iowa) Dressed Beef packing plant, at a recent convention of the National Livestock Feeders Assn. "You're still riding along on that half-pound to a pound a day level, when you should get it up more in line with the rest of the improved ration you're feeding. You can't expect faster gains and better feed efficiency unless you do."

He also stated in his comments on the way beef is being fed for slaughter, "For some reason, our cattle aren't cutting out as well today as they did five years ago. I don't know that stilbestrol is really at fault on any of this, but I do know we're not able to buy and be as sure of what we're getting as we once were."

◆

Egg Management

Even though he may have a large egg operation geared to efficient production, an egg producer might find some value in the advice of Bert Bartley, a Sevier County, Arkansas, flock owner who says proper management and flock care can make the difference between profit and loss in a commercial operation. "There is always room for improvement," Mr. Bartley says. "Now is the time to tighten your belt and trim away the waste from your egg programs."

Mr. Bartley, who has a laying flock of about 2,500 birds, recently bought an egg cooler and an egg washing machine. A short time ago he built a separate egg-grading and casing room. Eggs are gathered four or five times daily and are washed, sorted and cooled as necessary.

Other management practices which Mr. Bartley relies on to help him produce a better profit with his flock include: Weekly spraying of roosts to control lice, daily cleaning of all watering equipment, cleaning of feed troughs every other day, regular culling of "boarders."

Mr. Bartley's records show that his average daily feed cost has been $26, but he notes that this figure doesn't include the original costs of the flock, depreciation of house and equipment or lights and water. Still, he says his present production is almost two cases above feed costs.

◆

Clean 'Parlor' Is Must

Pig pens and equipment should be thoroughly disinfected before each new group of pigs is put in a pig parlor, University of Georgia animal husbandmen advise.

The specialists say that live steam is the best disinfectant to use, but if it is not available, pens and equipment should be scrubbed with a strong lye solution and rinsed thoroughly 24 hours later.

◆

Hay and Silage for Cows

Studies at Michigan State University indicate that dairy cows prefer a hay-silage diet to one of all silage. Dr. C. A. Lassiter reports that the animals will not eat as much feed or produce as much milk when fed all silage. And cows fed all silage will consume about 30% less dry matter than when fed both hay and silage, he says.

Silage can make up one half of the total roughage with no significant drop in milk production, Dr. Lassiter says. Advantages of silage feeding, such as mechanized handling, may offset differences in either milk production or feed intake.

"Since corn silage contains some grain and additional dry matter, the greatest differences appear between grass silage and rations containing hay," Dr. Lassiter notes.

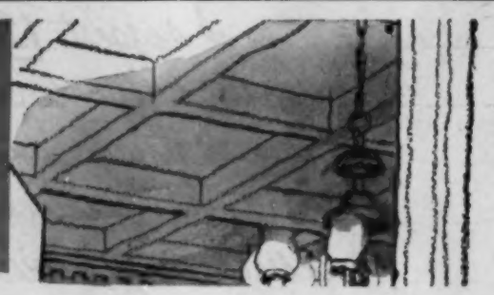
◆

Creep Feeding Lambs

Lambs born up to now will bring most profit if they're eating a "creep" ration by the time they're a week old, according to Dr. R. M. Jordan, livestock scientist at the University of Minnesota. He says creep-fed lambs grow faster and will be more likely to reach market weight in June, when prices are highest.

Last June, for example, lambs brought about $25 cwt., but dropped to about $20 in August and September. By the last two months of the

"We were taking the plan for granted"



"You know, Ed, it's so easy to take these things for granted. I knew we'd put in the Payroll Savings Plan a long time ago. So I just assumed we had a good, sizable number of our employees who were buying U.S. Savings Bonds regularly.

"Well, last week our chairman asked me for the exact figures. When I checked up I found we had less than a third of our people making regular use of the Plan. We needed to have someone explain—in person—the convenience and soundness of this fine thrift program.

"I contacted our State Savings Bonds Director right away. With his quick, friendly help we set up a thorough canvass of everybody on the staff. We found that many of our company family were just waiting to have someone tell them how simple it is to share in this sound, systematic thrift plan. Then the polite suggestion, 'And why not start now?' really did the work. Today we have a participation we're proud of, and we're taking steps to increase it still more, every payday."

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year, they were down to about $17 cwt.

Dr. Jordan also says it might be wise to pellet the entire creep ration —if you've had trouble in the past petting a ration consistent in content and form, and one lambs like to eat. If pelleting means lambs reach market a week or two sooner, when prices are higher, the added value could more than pay the pelleting cost.

In five trials during the past year, lambs on a pelleted creep feed averaged .62 lb. per day. That's compared to .6 lb. for those getting the same ration in meal form.

The standard practice—especially for lambs born later in the year—is to let them depend on nursing and pasturing for the first five months or so. However, research has shown they don't grow as rapidly that way as they would if creep-fed soon after birth.

In fact, Dr. Jordan says there's little point in having lambs born in January or February unless they're "pushed" to reach the peak June market. That's where creep feeding comes in.

◆

Pine Needle Abortions

Stockmen have been advised by Colorado State University scientists to keep their pregnant cows away from pine trees. Research conducted by the university staff revealed that eating pine needles can cause abortions in cows. They explained cows will eat pine needles greedily, when they can get them, even when getting plenty of hay and other feeds.

NEW ARKANSAS HATCHERY

PANGBURN, ARK.—Butler Brothers Enterprises will soon open a chick hatchery in this White County town. Henry B. Plant, Letona, is supervising construction. The hatchery building will be constructed of concrete blocks on a reinforced concrete slab.

Says Integration Has Hurt Poultry Industry

SAN FRANCISCO — Integration has hindered, rather than helped, solve the problem of depressed prices in the turkey, egg and fryer industries, according to testimony of William J. Kuhrt, assistant director of agriculture for the California Department of Agriculture, before a U.S. Senate Subcommittee on poultry and marketing problems.

"In so many instances," Mr. Kuhrt said, "the prime mover in the integration program is a feed company, intent on selling more feed and supplies, and whose primary source of income and profit is not from the sale of eggs, fryers or turkeys, but from the sale of feed and supplies."

Mr. Kuhrt said there is much evidence to indicate that the poultry and turkey producers' problems of overproduction have become more pronounced as integration has become more widely developed.

In his testimony, he urged that the Senate consider legislation modeled after the California Marketing Act, under which commodity producers, in a self-help program, are able to control surpluses.

New Installations

CHICAGO—Prater Pulverizer Co. has reported 79 new equipment installations recently.

The most installations, 18, were made in Wisconsin, followed by Illinois with 14 and Michigan with 8. Other states and number of installations include: Indiana, 7; Missouri, 6; Ohio, North Carolina, Nebraska and Mississippi, all 3 each; Oregon, 2, and Virginia, Arizona, Washington, Alaska, Colorado, Louisiana, Iowa, Minnesota, California and Arkansas, 1 each. Installations also were made in Managua, Nicaragua and Hong Kong, China.

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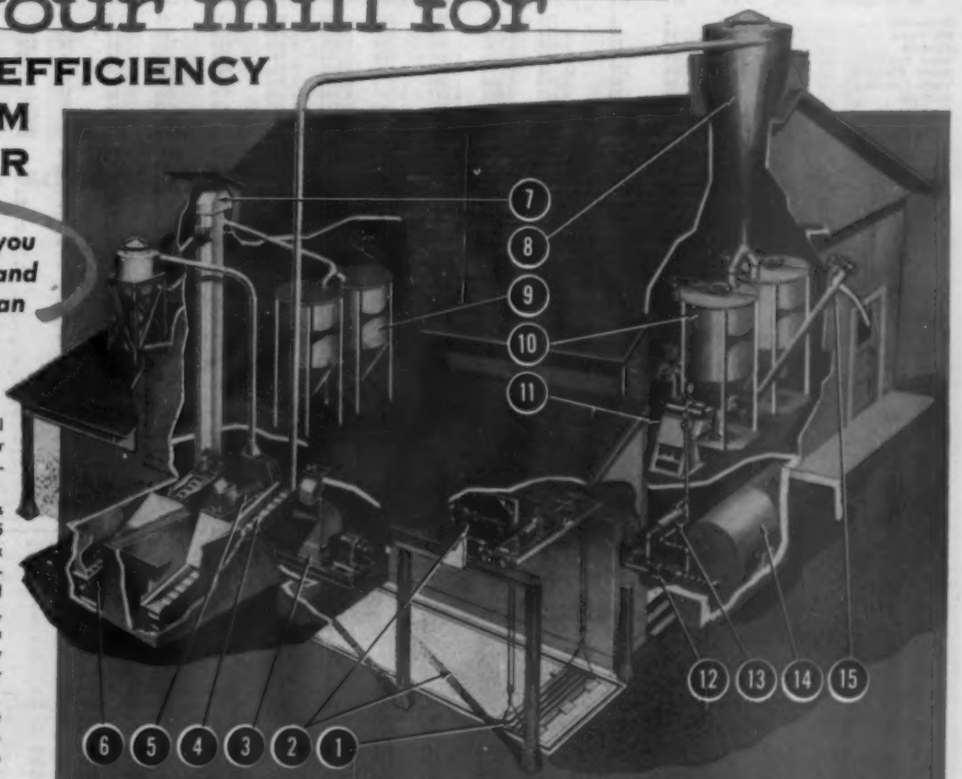

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6. Kelly Duplex 12" Pit Auger with vari-speed control
7. Kelly Duplex All Steel Bucket Elevator
8. Two Kelly Duplex Dust Collectors
9. Two Kelly Duplex No. 4 Grain Bins
10. Two Kelly Duplex No. 3 Vertical Feed Mixers
11. Kelly Duplex Twin Molasses Mixer
12. Kelly Duplex Molasses Pump
13. Kelly Duplex Molasses Heater
14. Kelly Duplex Molasses Tank
15. Kelly Duplex Screw Elevator with flexible spouting

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☐ Bucket Elevator
☐ Corn Crusher-Regulator
☐ Corn Sheller with Blowers
☐ Regular Corn Sheller
☐ Pitless Corn Sheller
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U.S. Farm Animal Population by States

Note: Number of livestock and poultry on farms and ranches (livestock and poultry not on farms are excluded), Jan. 1, 1959 and 1960 (000's omitted). Source: USDA

State and division	ALL SHEEP AND LAMBS		HORSES AND MULES		CHICKENS						TURKEYS**									
					—Total—		—Hens—		—Pullets—		—Other chickens*		ALL TURKEYS				—Total—		BREEDER HENS	
													—Heavy—		—Light—				—Heavy—	
	1959	1960	1959	1960	1959	1960	1959	1960	1959	1960	1959	1960	1959	1960	1959	1960	1959	1960	1959	1960
Maine	43	46	9	8	3,950	3,751	936	711	2,886	2,886	128	154	9	7	...	...	9	7	4	3
New Hampshire	8	8	5	4	2,803	2,722	541	481	2,130	2,109	132	132	23	21	...	...	23	21	16	14
Vermont	14	15	11	10	988	924	222	242	729	642	37	40	8	6	...	...	8	6	5	3
Massachusetts	12	12	7	7	4,160	3,814	1,034	972	3,014	2,713	112	129	54	56	...	...	54	56	21	21
Rhode Island	2	2	1	1	499	480	125	128	361	339	13	13	3	3	...	...	3	3	1	1
Connecticut	10	10	4	4	4,106	3,947	1,326	1,167	2,678	2,678	102	102	30	30	...	...	30	30	19	26
New York	191	186	42	40	10,244	8,813	4,000	3,480	5,908	5,081	336	252	57	38	2	1	59	39	40	28
New Jersey	19	20	9	8	14,371	12,874	4,686	5,061	9,150	7,412	535	401	17	18	2	2	19	20	9	10
Pennsylvania	259	264	50	49	21,735	21,178	6,407	6,535	14,127	13,562	1,201	1,081	160	157	20	20	180	177	47	45
N. Atlantic	558	563	138	131	62,856	58,503	19,277	18,777	40,983	37,422	2,596	2,304	361	344	24	23	385	367	162	151
Ohio	1,276	1,255	53	53	14,064	13,320	4,324	4,713	9,412	8,377	328	230	161	144	107	73	268	217	111	101
Indiana	521	483	33	33	13,853	13,326	3,728	4,026	9,750	8,970	375	330	53	37	5	4	58	41	27	18
Illinois	767	744	49	52	17,399	15,359	4,925	5,418	12,223	9,778	251	163	60	61	6	5	66	66	31	32
Michigan	421	410	33	34	9,683	9,284	3,327	3,493	6,038	5,495	318	296	96	87	9	5	105	92	79	73
Wisconsin	275	262	54	54	13,739	12,764	4,476	4,789	8,815	7,581	448	394	148	139	5	4	153	143	94	84
E. N. Central	3,260	3,154	222	226	68,738	64,053	20,780	22,439	46,238	40,201	1,720	1,413	518	468	132	91	650	559	342	308
Minnesota	995	1,042	63	61	21,399	19,488	5,278	5,700	15,792	13,581	329	207	450	515	180	95	550	610	360	395
Iowa	1,632	1,663	76	77	28,211	25,841	6,104	6,470	21,644	19,047	463	324	246	275	35	34	281	309	158	177
Missouri	897	861	106	110	13,703	12,266	3,825	4,016	9,458	7,850	580	400	205	193	21	18	226	211	146	136
North Dakota	686	675	63	61	3,568	3,264	1,091	1,135	2,333	2,030	144	99	43	39	1	1	44	40	25	24
South Dakota	1,616	1,653	64	62	9,008	8,713	2,348	2,606	6,444	5,928	216	179	67	24	6	1	73	25	11	13
Nebraska	807	805	71	71	11,372	11,052	2,806	3,171	8,111	7,462	455	419	65	58	2	2	67	60	38	34
Kansas	883	748	68	72	10,329	9,262	3,159	3,254	6,679	5,610	491	398	46	49	6	4	52	53	33	35
W. N. Central	7,516	7,447	511	514	97,670	89,886	24,611	26,352	70,461	61,508	2,598	2,026	1,122	1,153	171	155	1,293	1,308	771	814
Delaware	6	6	3	3	773	819	253	250	485	529	35	40	6	7	...	...	6	7	3	2
Maryland	47	47	14	13	2,751	2,556	818	802	1,810	1,654	115	100	18	15	1	1	19	16	12	9
Virginia	333	348	94	90	6,023	5,953	1,748	1,958	3,836	3,644	439	351	86	58	207	124	293	182	65	49
West Virginia	289	283	44	42	2,599	2,512	1,060	1,060	1,454	1,367	85	85	18	16	40	24	58	40	9	9
North Carolina	71	73	186	179	14,146	13,641	4,767	4,815	7,975	7,576	1,404	1,250	105	110	...	...	105	110	59	62
South Carolina	13	11	84	83	4,714	5,044	1,644	1,825	2,711	2,928	359	291	71	75	4	2	75	77	54	46
Georgia	48	36	99	94	9,651	9,950	3,092	3,247	6,240	6,365	319	338	36	37	...	6	36	43	21	22
Florida	9	9	32	31	5,075	5,897	1,952	2,440	2,716	2,960	407	497	26	22	31	12	57	34	15	12
S. Atlantic	816	805	556	535	45,732	46,372	15,334	16,397	27,236	27,023	3,163	2,952	365	340	283	169	648	509	238	211
Kentucky	604	586	170	162	7,346	7,306	2,610	2,793	4,260	4,132	476	381	57	53	1	1	58	54	45	42
Tennessee	303	279	167	159	7,588	7,045	3,211	3,179	3,844	3,383	525	483	21	23	1	...	22	23	12	13
Alabama	70	67	117	118	6,965	6,595	2,651	2,784	3,836	3,376	478	435	21	25	9	6	30	31	13	15
Mississippi	100	94	170	163	5,366	6,378	2,245	2,604	2,631	3,328	480	446	54	55	6	5	60	60	32	34
Arkansas	62	61	92	96	5,056	5,242	1,901	2,129	2,904	2,875	251	238	95	86	34	17	129	103	56	47
Louisiana	83	78	98	93	3,034	2,824	1,067	1,110	1,550	1,344	417	350	23	20	...	...	23	20	15	13
Oklahoma	281	253	88	91	5,428	4,939	2,510	2,460	2,749	2,364	169	115	76	72	16	5	92	77	49	46
Texas	5,458	6,074	232	218	17,196	15,511	7,037	7,389	9,214	7,555	945	567	420	335	95	56	515	391	304	211
S. Central	6,961	7,492	1,134	1,100	57,971	55,840	23,282	24,448	30,998	28,377	3,741	3,015	767	669	162	90	929	759	528	420
Montana	1,840	1,856	89	91	1,505	1,435	470	454	979	930	56	49	4	3	...	...	4	3	3	2
Idaho	1,170	1,148	51	52	1,722	1,728	497	512	1,159	1,147	66	61	6	8	2	3	8	11	4	6
Wyoming	2,276	2,360	52	52	452	440	172	208	268	220	12	12	4	4	...	...	4	4	1	1
Colorado	1,892	1,948	69	70	1,840	1,617	719	741	1,074	838	47	38	28	28	2	2	30	30	8	8
New Mexico	1,293	1,347	69	69	800	792	370	366	390	386	40	40	6	8	...	...	6	8	3	4
Arizona	462	484	58	58	853	768	319	303	456	410	78	55	12	15	...	...	12	15	6	8
Utah	1,382	1,326	33	33	2,239	2,291	968	978	1,167	1,225	94	88	67	138	2	...	69	138	34	48
Nevada	421	421	20	20	227	226	44	41	72	70	15	15	...	...	...	...	...	...	...	...
Washington	288	303	34	34	5,864	6,035	2,009	2,049	3,590	3,734	265	252	99	84	6	5	105	89	63	46
Oregon	917	944	45	45	3,773	3,725	1,295	1,424	2,339	2,152	139	149	243	237	35	30	278	267	193	184
California	1,893	2,023	70	68	31,397	33,256	9,456	10,023	16,693	18,195	5,248	5,038	1,474	1,580	28	26	1,502	1,606	761	803
Western	13,834	14,160	581	583	50,562	52,206	16,315	17,101	28,187	29,307	6,060	5,797	1,943	2,105	75	66	2,018	2,171	1,077	1,112
U. S.	32,945	33,621	3,142	3,089	383,529	366,859	119,549	125,514	244,102	223,838	19,878	17,507	5,076	5,079	847	594	5,923	5,673	3,118	3,016

*Does not include commercial broilers. **Does not include turkey fryers.

State and division	TURKEYS**						CATTLE AND CALVES													
	BREEDER HENS						All cattle and calves		KEPT FOR MILK						OTHER					
	—Light—		—Total—						Cows 2 yrs. and older		—Heifers— 1 to 2 yrs.		—Heifer— calves		Cows 2 yrs. and older		Heifers 1 to 2 yrs.		—Calves—	
	1959	1960	1959	1960			1959	1960	1959	1960	1959	1960	1959	1960	1959	1960	1959	1960	1959	1960
Maine	...	...	4	3			194	194	106	103	31	31	31	31	9	9	3	4	6	8
New Hampshire	...	...	16	14			98	100	59	58	15	16	16	18	2	2	1	1	2	2
Vermont	...	...	5	3			423	423	288	285	55	58	62	62	3	3	2	2	4	4
Massachusetts	...	...	21	21			151	151	102	100	19	19	20	20	2	3	2	3	2	2
Rhode Island	...	...	1	1			22	21	17	16	2	2	2	2	...	...	...	...	...	...
Connecticut	...	...	19	26			155	157	103	102	20	21	22	22	2	3	1	2	2	2
New York	1	1	59	39			2,153	2,218	1,395	1,395	302	320	321	340	39	45	8	12	28	37
New Jersey	2	1	59	39			213	219	148	148	23	24	26	27	4	5	2	3	5	5
Pennsylvania	20	20	180	177			1,877	1,971	1,039	1,049	246	261	264	290	83	93	36	43	43	53
N. Atlantic	24	23	385	367			5,286	5,454	3,257	3,256	713	752	763	812	144	163	55	70	92	113
Ohio	107	73	268	217			2,367	2,462	857	848	204	210	228	230	237	280	116	128	387	423
Indiana	58	41	27	18			2,107	2,191	531	526	123	135	146	146	337	347	155	149	481	516
Illinois	66	66	31	32			3,981	4,100	775	736	221	214	258	266	607	654	240	274	977	968
Michigan	105	92	79	73			1,829	1,884	820	812	238	243	261	262	99	104	71	72	176	212
Wisconsin	153	143	94	84			4,170	4,295	2,426	2,402	614	636	647	672	186	123	81	115	104	123
E. N. Central	650	559	342	308			14,454	14,932	5,409	5,324	1,400	1,437	1,532	1,566	1,380	1,478	663	733	2,125	2,242
Minnesota	550	610	360	395			29,311	30,496	4,777	4,685	1,215	1,217	1,350	1,396	6,862	7,280	2,125	2,337	8,196	8,448
Iowa	281	309	158	177			43,765	45,428	10,186	10,009	2,615	2,654	2,882	2,962	8,242	8,758	2,788	3,070	10,321	10,690
Missouri	226	211	146	136			2,804	2,882	1,352	1,341	79	70	90	94	628	659	138	133	458	486
North Dakota	44	40	25	24			2,809	2,826	1,242	1,305	262	243	937	1,000	333	308	70	75	1,691	1,336
South Dakota	73	25	11	13			5,870	5,933	2,426	2,306	303	271	1,497	1,591	457	529	1,531	1,613	841	926
Nebraska	67	60	38	34			5,999	5,330	392	386	98	98	110	112	1,137	1,262	372	420	1,477	1,517
Kansas	52	53	33	35			4,476	4,700	441	423	105	109	130	134	1,137	1,262	372	420	1,477	1,517
W. N. Central	1,293	1,308	771	814			30,496	30,496	4,777	4,685	1,215	1,217	1,350	1,396	6,862	7,280	2,125	2,337	8,196	8,448
Delaware	6	7	3	2			43,765	45,428	10,186	10,009	2,615	2,654	2,882	2,962	8,242	8,758	2,788	3,070	10,321	10,690
Maryland	19	16	12	9			2,804	2,882	1,352	1,341	79	70	90	94	628	659	138	133	458	486
Virginia	293	182	65	49			2,809	2,826	1,242	1,305	262	243	937	1,000	333	308	70	75	1,691	1,336
West Virginia	58	40	9	9			5,870	5,933	2,426	2,306	303	271	1,497	1,591	457	529	1,531	1,613	841	926
North Carolina	105	110	59	62			5,999	5,330	392	386	98	98	110	112	1,137	1,262	372	420	1,477	1,517
South Carolina	75	77	54	46			4,476	4,700	441	423	105	109	130	134	1,137	1,262	372	420	1,477	1,517
Georgia	36	43	21	22			30,496	30,496	4,777	4,685	1,215	1,217	1,350	1,396	6,862	7,280	2,125	2,337	8,196	8,448
Florida	57	34	15	12			43,765	45,428	10,186	10,009	2,615	2,654	2,882	2,962	8,242	8,758	2,788	3,070	10,321	10,690
S. Atlantic	423	288	238	211			2,804	2,882	1,352	1,341	79	70	90	94	628	659	138	133	458	486
Kentucky	45	42	1	1			5,870	5,933	2,426	2,306	303	271	1,497	1,591	457	529	1,531	1,613	841	926
Tennessee	12	13	1	...			5,999	5,330	392	386	98	98	110	112	1,137	1,262	372	420	1,477	1,517
Alabama	32	34	5	3			4,476	4,700	441	423	105	109	130	134	1,137	1,262	372	420	1,477	1,517
Mississippi	129	103	56	47			30,496	30,496	4,777	4,685	1,215	1,217	1,350	1,396	6,862	7,280	2,125	2,337	8,196	8,448
Arkansas	49	46	14	7			43,765	45,428	10,186	10,009	2,615	2,654	2,882	2,962	8,242	8,758	2,788	3,070	10,321	10,690
Louisiana	15	13	...	...			2,804	2,882	1,352	1,341	79	70	90	94	628	659	138	133	458	486
Oklahoma	92	77	49	46			5,870	5,933	2,426	2,306	303	271	1,497	1,591	457	529	1,531	1,613	841	926
Texas	420	335	95	86			5,999	5,330	392	386	98	98	110	112	1,137	1,262	372	420	1,477	1,517
S. Central	767	669	162	90			4,476	4,700	441	423	105	109	130	134	1,137	1,262	372	420	1,477	1,517
Montana	4	3	3	2			1,840	1,856	89	91	1,505	1,435	470	454	979	930	56	49	4	3
Idaho	6	8	2	3			1,170	1,148	51	52	1,722	1,728	497	512	1,159	1,147	66	61	6	8
Wyoming	4	4	...	...			2,276	2,360	52	52	452	440	172	208	268	220	12	12	4	4
Colorado	28	28	2	2			1,892	1,948	69	70	1,840	1,617	719	741	1,074	838	47	38	28	28
New Mexico	6	8	...	...			1,293	1,347	69	69	800	792	370	366	390	386	40	40	6	8
Arizona	12	15	...	...			462	484	58	58	853	768	319	303	456	410	78	55	12	15
Utah	67	138	2	...			1,382	1,326	33	33	2,239	2,291	968	978	1,167	1,225	94	88	67	138
Nevada	...	...	...	...			421	421	20	20	227	226	44	41	72	70	15	15	...	...
Washington	99	84	6	5			288	303	34	34	5,864	6,035	2,009	2,049	3,590	3,734	265	252	99	84
Oregon	243	237	35	30			917	944	45	45	3,773	3,725	1,295	1,424	2,339	2,152	139	149	243	237
California	1,474	1,580	28	26			1,893	2,023	70	68	31,397	33,256	9,456	10,023	16,693	18,195	5,248	5,038	1,474	1,580
Western	1,943	2,105	75	66			13,834	14,160	581	583	50,562	52,206	16,315	17,101	28,187	29,307	6,060	5,797	1,943	2,105
U. S.	5,076	5,079	847	594			32,945	33,621	3,142	3,089	383,529	366,859	119,549	125,514	244,102	223,838	19,878	17,507	5,076	5,079

State and division	CATTLE AND CALVES				HOGS AND PIGS							
	OTHER								—Six months and over—			
	Steers 1 yr. and older		Bulls 1 yr. and older		—Total—		Under six months		—Sows— and gilts		—Others—	
	1959	1960	1959	1960	1959	1960	1959	1960	1959	1960	1959	1960
Maine	4	4	4	4	20	22	11	13	3	3	6	6
New Hampshire	1	1	2	2	13	13	8	8	2	2	3	3
Vermont	2	2	7	7	11	11	7	7	2	2	2	2
Massachusetts	1	1	1	1	11	11	6	7	1	1	4	3
Rhode Island	...	...	...	...	2	2	1	1	...	...	1	1
Connecticut	3	3	3	3	22	22	13	11	2	2	7	9
New York	30	37	30	32	129	133	89	90	20	18	20	25
New Jersey	3	4	3	3	173	168	90	90	18	19	65	59
Pennsylvania	138	152	28	30	508	574	348	385	75	81	85	108
N. Atl.	182	204	80	84	1,038	1,094	649	686	138	141	251	267
Ohio	309	348	29	30	2,602	2,733	2,039	2,121	402	386	162	226
Indiana	312	349	22	23	4,593	4,317	3,550	3,300	635	570	408	447
Illinois	875	950	42	48	7,106	7,390	4,970	5,168	1,093	984	1,043	1,238
Michigan	144	158	20	21	719	719	545	529	116	102	58	88
Wisconsin	141	171	51	54	1,801	1,765	1,234	1,234	372	327	195	204
E. N. Central	1,781	1,976	184	176	16,822	16,924	12,338	12,352	2,618	2,369	1,866	2,203
Minnesota	430	503	45	51	3,815	3,662	2,400	2,336	680	579	735	747
Iowa	1,390	1,547	72	74	12,533	12,658	7,808	7,808	2,805	1,764	2,720	3,086
Missouri	520	536	73	77	3,956	4,549	2,877	3,287	621	578	458	684
North Dakota	86	85	39	41	410	332	115	105	111	76	184	151
South Dakota	333	308	70	75	1,591	1,336	610	531	366	260	615	545
Nebraska	841	926	73	75	2,453	2,404	1,330	1,303	455	345	668	736
Kansas	1,477	1,517	762	762	1,067	1,067	746	730	165	132	154	285
W. N. Central	8,196	8,448	4,352	4,672	434	461	25,825	26,008	15,886	16,100	4,403	3,754	5,536	6,154
Minn.	3,973	4,092	1,451	1,436	421	429	440	455	298	312	177	202	711	704
Iowa	6,536	6,797	1,024	993	248	255	265	241	921	967	489	567	2,127	2,133
Mo.	4,098	4,262	811	803	193	187	197	217	1,119	1,184	230	243	955	1,015
N. D.	1,870	1,889	352	341	79	70	90	94	628	659	138	133	458	486
S. D.	3,426	3,306	303	71	69	118	123	1,242	1,305	262	243	937	1,000	333
Neb.	4,999	5,330	392	386	98	98	110	112	1,497	1,591	457	529	1,531	1,613
Kansas	4,476	4,700	441	423	105	109	130	134	1,137	1,262	372	420	1,477	1,517
W. N. C.	29,311	30,496	4,777	4,685	1,215	1,217	1,350	1,396	6,862	7,280	2,125	2,337	8,196	8,448
N. Cent.	43,765	45,428	10,186	10,009	2,615	2,654	2,882	2,962	8,242	8,758	2,788	3,070	10,321	10,690
Del.	65	65	33	33	8	8	9	9	7	7	1	1	3	3
Md.	529	545	243	248	53	56	56	59	59	63	25	24	32	36
Va.	1,348	1,407	405	417	88	93	100	106	319	342	81	91	198	215
W. Va.	541	568	180	180	33	35	36	38	128	134	36	45	76	86
N. C.	1,014	1,075	375	382	86	92	96	103	223	239	74	81	103	110
S. C.	613	631	159	161	36	38	40	41	182	192	56	54	94	97
Georgia	1,515	1,606	313	307	85	86	97	100	520	551	130	141	258	302
Florida	1,095	1,990	234	243	76	84	86	89	807	807	143	132	243	285
S. Atl.	7,512	7,887	1,942	1,971	465	492	520	545	2,245	2,335	546	569	1,007	1,134
Ky.	1,843	1,935	628	615	120	120	126	126	367	406	120	124	304	352
Tenn.	1,753	1,876	628	622	125	133	147	158	365	421	126	134	249	292
Ala.	1,816	1,907	376	368	107	107	136	141	683	738	120	126	272	298
Miss.	2,363	2,505	519	503	128	128	134	138	912	968	203	224	342	414
Ark.	1,462	1,535	322	328	82	82	102	108	501	543	108	109	244	267
La.	1,808	1,898	321	321	74	74	84	91	839	896	175	186	237	287
Okla.	3,313	3,545	370	346	89	92	142	145	1,292	1,418	282	305	797	848
Texas	9,510	9,276	735	713	177	182	196	204	3,948	4,296	681	765	2,058	2,357
S. Cent.	22,868	24,477	3,899	3,836	902	918	1,067	1,121	8,907	9,646	1,815	1,973	4,503	5,118
Mont.	2,269	2,428	94	92	28	19	29	31	1,116	1,164	215	230	635	724
Idaho	1,414	1,456	240	242	75	81	92	93	389	420	110	109	320	328
Wyo.	1,163	1,178	40	40	10	10	11	11	532	541	113	115	348	351
Colo.	2,204	2,382	147	144	39	41	50	52	755	806	317	334	581	641
N. Mex.	1,162	1,267	53	55	10	11	13	15	623	673	102	107	286	324
Ariz.	971	1,110	54	55	16	17	18	21	372	417	78	90	217	223
Utah	720	749	112	116	29	33	34	37	248	258	68	68	148	160
Nev.	597	609	18	19	9	10	11	12	297	307	65	68	138	140
Wash.	1,178	1,237	286	292	70	76	82	87	255	278	86	97	257	260
Ore.	1,497	1,587	215	221	61	65	81	84	537	590	129	132	334	362
Calif.	4,044	4,274	945	983	262	275	298	316	851	907	333	387	511	528
Western	17,219	18,274	2,204	2,259	681	638	719	759	5,975	6,361	1,616	1,737	3,775	4,041
U. S.	96,680	101,520	21,488	21,331	5,296	5,454	5,951	6,199	25,613	27,263	6,820	7,419	19,698	21,093

State and division	HOGS AND PIGS									
	—Six months

Hy-Line® Layers

First in 6 of 12 Random Sample Tests...

that's the Hy-Line 934 Series record for tests ending in 1959. No other layer won more than one test. And compared to the 9 next largest-selling birds in 22 tests during the last 2 years, Hy-Line 934 Series layers showed an income advantage over chick and feed cost of . . .

55¢ MORE INCOME PER BIRD

(average income advantage over next 9 largest-selling layers)

HERE'S WHAT THE TESTS SHOW!		
Hy-Line 934 Series layers averaged . . .	Hy-Line advantage over 9 next largest-selling layers	Hy-Line advantage over all competitive entries
GREATER INCOME	55¢ more	64¢ more
MORE EGGS	16.8 more	20.6 more
BETTER LAYING HOUSE LIVABILITY	4.8% better	6.2% better
BETTER FEED EFFICIENCY	.3 lb. less feed per dozen eggs	.4 lb. less feed per dozen eggs
MORE LARGE AND EXTRA-LARGE EGGS	4.9% more	6.0% more
HIGHER MARKET PRICE PER CASE	31¢ more per case	33¢ more per case
LESS BODY WEIGHT	.4 lb. less	.6 lb. less

Extra income over feed and chick cost: ***An average of 55¢ more income per bird (ranging from 27¢ to $1.14 more) than the next 9 largest-selling layers . . . sound reason to order Hy-Line chicks this year!***

The chart above proves that Hy-Line Precision Genetics creates a harder-working layer. Hy-Line 934 Series layers averaged 55¢ more income per bird, based on two years of Random Sample Tests . . . not just a handful of tests, but 22 in all. Note, too, that these records were made by Hy-Line 934 Series layers . . . the kind you can buy this very year.

Hy-Line® CHICKS

HY-LINE POULTRY FARMS

A department of Pioneer® Hi-Bred Corn Co., Des Moines, Iowa

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WIN A PICKUP—Some of the Pay Way Feed Mills, Inc., feed dealers and their wives who recently attended the company's 1960 dealer convention in Kansas City from a five-state area, are shown viewing the 1960 Studebaker "Champ" loaded with Pay Way Feed which will be won by some farm family in the firm's "Win This Pickup Full of Pay Way" prize drawing. A total of 50 other prizes will be given away in the spring promotion, including 25 Schulte 60-bu. Red Line hog feeders and 25 baby pig creep feeders or electric deep fryers.

MARYLAND

(Continued from page 10)

which permits the calculation of both caloric intake and amino acid requirements.

At the outset, Dr. Combs noted that reviews on protein requirements of laying hens have shown considerable variation in the percent protein deemed adequate. His report related certain factors, including body size, rate of gain, egg size, percent production, temperature, energy content and amino acid makeup of the protein, to the protein and energy requirement.

Dr. Combs first reviewed a Maryland study of different protein levels. In this connection it was noted that the data failed to indicate that the highest level of protein (15.3%) provided more protein than was required. In fact, it is considered that the 15.3% protein diet probably failed to supply sufficient protein to meet requirements of early heavy production.

Using data from the experiment, he went on to present detailed information on energy and methionine requirement calculations. And, applying certain conversion factors, approximate levels of other amino acids required can be calculated.

The report included several example calculations of requirements for methionine and lysine. These covered certain differences in body weight, amount of eggs produced, temperature and ration energy level. By inspection, using the method described, one would postulate that from .207 to .341% methionine would be required under the specified conditions. It is not unlikely, therefore, said Dr. Combs, that quite varied reports have appeared concerning protein requirements of laying hens. This, he said, is only to be expected.

After determining the grams of the first limiting amino acid (usually methionine) required per therm of energy, one can solve a certain equation to determine the actual level of soybean meal and corn needed in addition to other fixed ingredients. Formulas also may be prepared in a similar manner to meet just the lysine requirement (second limiting), with the difference in methionine level and requirement to be added. An example ration in which methionine would be added would contain 14.1% protein. This would be 3% more potent in energy and would contain 3.6% less protein than one formulated to meet the methionine requirement from natural ingredients.

For convenience a series of rations have been computed, together with pertinent compositional data. These include 10% of certain fixed ingredients. From the table, one can rapidly select the corn-soy ration which would meet the methionine (or lysine) requirement of layers as described. If the formula were made to be just adequate in lysine, less protein would be required and by adding required amount of methionine, results should be the same. Economics of formulation must dictate the approach to use.

Energy Restrictions: Dr. Combs also told of studies dealing with energy restriction of Columbian Rock pullets and Maryland flightless strain pullets. Although these results failed to show any advantage in egg production or mortality as a result of energy restriction, they likewise failed to reveal any marked adverse effects. It appears that heavier birds are required before changes in body weight and fat content are reflected in mortality differences.

Lighting System and Kelp Ash: There was no apparent difference in results obtained with hens given 13 hours of light per day and hens which received an increasing amount of light every two weeks until 24-hour lighting was achieved. Of course, those which received 13-hour light also received additional sunlight after early March.

In spite of the possibilities that some trace minerals might be depleted in extended laying, results of a test failed to show an advantage as a result of adding the ash from Norwegian kelp (which seemed to be a good source of many trace minerals not normally found in abundance in plant materials grown on leached soil).

METHODS OF CALCULATING DIETS AND SUBSTITUTION EQUIVALENTS—Dr. R. D. Creek of the Maryland poultry department described methods to simplify the problem of formulating poultry diets. The problem, it was noted, has become more complex with the insertion of energy into the picture.

Dr. Creek outlined three separate computations. All are similar in approach in that they involve setting up the Calorie-protein ratio, or its reciprocal, in algebraic form, and partitioning out the sources of energy, protein or amino acids.

One part of the presentation showed a method of calculating the amounts of corn and soybean oil meal needed to complete a formula and arrive at a specific C/P ratio. The information included a set of equations for solving corn-soybean meal combinations.

Dr. Creek went on to show computations to arrive at specified amino acid ratios. He outlined a method to be used to complete a diet which will meet a specified amino acid requirement expressed as % of therm (1,000 Calories). Equations using estimated requirements of broiler starting rations were given for certain amino acids.

The first two sections of the report (briefly described above) are useful in the original construction of a formula, it was noted, but they leave unsolved the problems of ingredient substitution—namely, what changes must be made to keep energy-protein balance and maintain adequacy of other dietary constituents. With this in mind, another major part of Dr. Creek's report was the presentation of substitution equivalents.

Data covering substitution of fat and cereal grain and by-products at various C/P ratios were given. For example, one of the tables showed the changes in ingredients and composition for each 1% substitution of various grains or by-products in corn-soybean meal diets.

PRACTICAL BROILER RATION STUDIES — Practical broiler ration studies conducted by Maryland workers during the past year, explained Dr. G. F. Combs, have been designed primarily to test the adequacy of simplified broiler feeds under practical conditions. These studies include comparison of different protein levels, various "fish factor" and "whey factor" supplements, additional vitamin fortification, a comparison of fats and the use of full-fat unextracted ground soybeans. Dr. Combs also told of other work on amino acid supplementation of a diluted practical type broiler feed and a study of energy utilization by chicks.

Protein Levels: Dr. Combs presented data on the use of "stretched protein" rations. The formulas are primarily simplified corn-soy rations with alfalfa meal, corn gluten meal, minerals, vitamins and drugs. The results indicate that such rations supply adequate amounts of amino acids at the C/P ratios used after the methionine level is corrected through supplementation.

Also presented were suggested minimum levels of amino acids in relation to metabolizable energy content of broiler starting and finishing feeds. The results are consistent with earlier beliefs that the relationship of amino acid levels to energy level provides more exact basis of expressing requirements than does protein-energy relationships.

Unexplained Growth Responses: Results from addition of "fish factor" supplements in several trials showed an average difference amounting to 2% heavier birds at 8 weeks of age. There was no effect on feed conversion. Actual cause of the slightly better growth rate is not known. No response in either growth rate or feed conversion was evident in trials involving dried whey, Dr. Combs reported.

Additional Vitamin Supplementation: In view of the possibility that simplified corn-soybean meal-type broiler feeds containing various drugs might be suboptimal in pyridoxine, biotin, folacin and ascorbic acid, four trials were conducted with broilers reared in floor pens on litter. Results indicated that these vitamins are not likely to be limiting in such feeds for birds reared on litter.

Full-fat Soybeans and Fat Source: Floor pen trials were conducted involving use of heated, unextracted full-fat ground soybeans as a replacement for the soybean oil meal and all or part of the added fat. Results showed that the feeds containing unextracted ground beans performed only slightly more poorly than control feeds.

More recent work from Cornell suggests that "flaked" soybeans are superior to "ground" soybeans and that soybean oil stimulates growth of chicks. Growth responses from use of corn oil in purified type diets at Maryland have been reported. Marked differences in relative values of various fats as a source of energy also have been observed in studies where nutrient intake varied only in respect to amount and source of energy. However, continuation of these studies with chicks fed practical diets ad libitum has failed to show important differences in value of different fats.

Direct comparisons of the feeding value of soybean oil and animal fats were initiated at Maryland, and in the first of these tests, chicks receiving feed containing animal grease failed to perform as well as those receving soybean oil or corn oil. If indeed soybean oil supplementation will improve growth rate of broiler chicks fed practical type feeds, Dr. Combs said, further efforts are needed to develop a properly processed full-fat soybean product.

Questions have arisen concerning effects of changing broilers from a high fat to a low fat ration or vice versa. Starting and finishing rations containing either 2 or 7% added fat were used to study the effect of change-over. High-fat rations were fed as mashes, while the low-fat feeds were pelleted. The trials failed to show any important effect as a result of changing from one feed to another at 5 or 6 weeks. Dr. Combs said it would not seem necessary to consider the fat level per se provided the feed is sufficiently concentrated to insure adequate intake of nutrients.

Energy Utilization and Source: In work with chicks fed purified type diets containing different levels of glucose, corn oil and isolated soybean protein, results indicate that as fat level was increased from 2 to 20% of the diet, the proportion of metabolizable energy consumed which was detained in the carcass decreased. At the same time, the calculated heat increment value increased, and the calculated relative productive energy, expressed as a percent of metabolizable energy, decreased. This decrease in caloric retention in the carcass in relation to metabolizable Calories consumed as the fat content of the ration increased, is of interest, Dr. Combs noted. The results do not agree with those of others suggesting that heat increment of fat is lower than that for other energy sources. The results pertain only to the young chick, from 2 to 4 weeks of age, when the fat content of the chick is relatively low. The data offer no support for the hypothesis that high levels of fat calories (corn oil) reduce the heat increment of young chicks.

Amino Acid Studies: In studies designed to determine the order of amino acid limitation in practical broiler feeds, a simplified corn-soy type ration was diluted with a starch-fat mixture fortified with minerals and vitamins to obtain lower protein levels. It has been possible to obtain optimum growth with a ration containing only 14% protein by supplementing the diluted ration with adequate amounts of essential amino acids and glutamic acid for additional amino nitrogen. This accomplishment by D. F. Middendorf, said Dr. Combs, tends to minimize concern about unidentified growth factors associated with protein and gives considerable support to the premise that the essential amino acid and amino nitrogen content of protein represent its critical contributions to practical feeds.

CHICK STUDIES — Dr. R. D. Creek, University of Maryland, reported the results of tests in which dehydrated sweet corn silage, antibiotics and unidentified growth factors relative to chick diets were studied.

Dehydrated sweet corn silage: Experimental data has shown that young chicks may tolerate, "in substantial quantity," sweet corn silage, a by-product of the canning industry which, when dehydrated, is estimated to have 8% protein and 275 Cal-

2% LESS FARMS IN 1959

WASHINGTON—The U.S. Department of Agriculture's Crop Reporting Board now estimates that the number of farms in operation in 1959 was 4,641,000, about 2% less than in 1958.

Farms continued to gain slightly in average size in most states from purchases and consolidations as the number of farms declined. Further reductions in farm numbers are continuing, the current report says, and may bring the U.S. total of operating farms in 1960 to about 4,540,000.

ories of productive energy per pound. It was studied as a source of bulk to restrict feed intake.

He said data obtained in a test with grower diets indicated that the chick can increase intake on a volume basis "considerably."

"Birds receiving 15% silage theoretically consumed more protein and energy than birds receiving the basal diet, but the fact that they grew poorer would cast serious doubt on the availability of these nutrients," Dr. Creek said. "Quality of protein could also enter in here.

"In view of the fact this experiment was short-term in nature (19 days), and the birds were young, it is entirely possible that growth and increase in gut size might compensate for the high fiber levels if the experimental period had been longer," Dr. Creek continued.

Antibiotics: Dr. Creek reported that, in work with several newer antibiotics, these "newer antibiotics stimulated growth somewhat more than those in common usage a number of years." He commented also, "The levels of 'older' antibiotics used had, in the past, been considered sufficient to produce maximum growth; thus, it would appear that these levels must be increased in order to give the same response as ascertained with the newer drugs.

"From the feed manufacturer's standpoint, it appears that choice of antibiotic will be determined by cost to produce maximum growth, and not by distinction as to new or old."

Unidentified growth factor sources: Work at the University of Maryland by Dr. G. F. Combs has demonstrated small responses from fish products, Dr. Creek noted, but little or none from other unidentified factor sources.

He said the discovery of the dietary significance of zinc and its subsequent inclusion in poultry diets has eliminated much of the response obtained from unidentified factor sources.

Perosis: Regarding still another study involving chicks, Dr. Creek said work at the University of Maryland on the biochemical mechanism(s) involved in the perosis complex has been based on the assumption that the problem lies in the general field of one-carbon metabolism and the synthesis or retention of purines and nucleic acids.

Dr. Creek reviewed perosis research which has been conducted at the University of Maryland and at other institutions.

PHOSPHORUS IN BROILER RATIONS—The nutritionist must consider more than just the cost of his phosphorus on a "per-unit-of-phosphorus" basis when selecting a phosphorus supplement for broiler rations because, according to Dr. Henry L. Fuller, University of Georgia, if the cost is determined in that manner, the use of materials of low phosphorus concentration and availability may result.

"It will usually be to the advantage of the feed man to use phosphate supplements of relatively high phosphorus concentration (17 or 18% phosphorus), of known high availability and of the greatest safety from fluorine toxicity," Dr. Fuller said. "Application of the principle of the calorie-protein ratio would indicate a need for increased phosphorus levels in broiler rations in line with calorie density," he continued. "This need has been demonstrated with other nutrients and it is wholly logical. Yet there is no clear-cut evidence for increasing phosphorus requirements over those expressed by the National Research Council at a time when energy values were considerably below present levels in broiler rations.

"This is not as much of a paradox as it seems. Advances in phosphorus nutrition have been largely qualitative, which cannot be divorced from the quantitative aspects, although the relationship may not always be apparent. This approach has been mani-

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fested in a number of ways, including: (a) Application of availability data, (b) a better understanding of 'margins of safety' and (c) higher standards of efficiency and safety in the formulations of rations."

STUDIES CONCERNING THE REQUIREMENTS OF POULTRY FOR CALCIUM, MAGNESIUM, POTASSIUM AND ZINC—Several aspects of mineral nutrition are being studied at Maryland, and a summary of some findings to date was presented by Dr. W. C. Supplee.

Effect of an Antibiotic on the Requirement of the Poult for Potassium: In conformity with previous work with purified poult diets, growth improved as potassium level was increased up to .6% when the antibiotic was not used. With the antibiotic (oleandomycin) diets, however, maximum growth was obtained at .45% potassium. The most likely explanation for this effect seems to be that the antibiotic brings about an improvement in the absorption of potassium by reducing the harmful effect of microflora on the gut wall.

Observations on the Effect of Zinc Deficiency in the Hen Diet: Considerable information in regard to zinc was presented, including results showing abnormality in embryos from hens on zinc-deficient diets, and the author concluded that zinc is, in all probability, an indispensable nutrient, and that a sufficiently severe and prolonged deficiency would result in death. The lack of difference in egg production between the basal and supplemented group hens in the test reported simply shows, in the opinion of the author, that the hen will continue to lay at a normal or nearly normal rate with zinc intakes which will not permit her to transfer enough zinc to the egg to meet the needs of the embryo. With a sufficiently lowered intake over an extended period, egg production would probably be profoundly affected.

Studies of Calcium Requirements of Poults: Although NRC recommendations specify 2% calcium in turkey starter rations, it seems to be rather widely felt that this level is higher than necessary. In view of the evidence that calcium may reduce availability of certain trace minerals and antibiotics, the importance of avoiding excesses is obvious, said Dr. Supplee.

Tests with both purified diets and practical rations were outlined. The practical ration tests support the purified diet data in indicating that 2% calcium is higher than is required and that a level of 1.6% or at the most 1.7% would be adequate and provide a considerable safety margin.

Studies of the Magnesium Requirement of Chicks and Poults: Practical rations contain far more magnesium than any likely requirement, but information on the requirement is important in designing purified diets.

Preliminary results of Maryland work with chicks indicate that, with an antibiotic in the diet, a level of 250 ppm is fully adequate. Without an antibiotic (oleandomycin at 50 ppm has been used) the requirement appears to be about 285 ppm. Limited work with poults indicates the minimum requirement to be about 325 ppm.

NUTRITION AND ENVIRONMENTAL TEMPERATURE STUDIES WITH BROILERS—"As the field of nutrition advances, it becomes more and more evident that breed and strain, sex, age, season and local environment will become the criteria for greater specialization in feed formulation for poultry," said D. L. Pope of the University of Maryland.

"There is no question that optimum performance is usually obtained during periods of moderate environmental temperatures as found in the fall and spring," Mr. Pope said. "In an effort to gain a better understanding of this relationship, work was initiated at the University of Maryland to study broiler nutrition in relation to environmental temperature."

In general, Mr. Pope notes, feed efficiency was decreased as tempera-

(Turn to MARYLAND, page 106)

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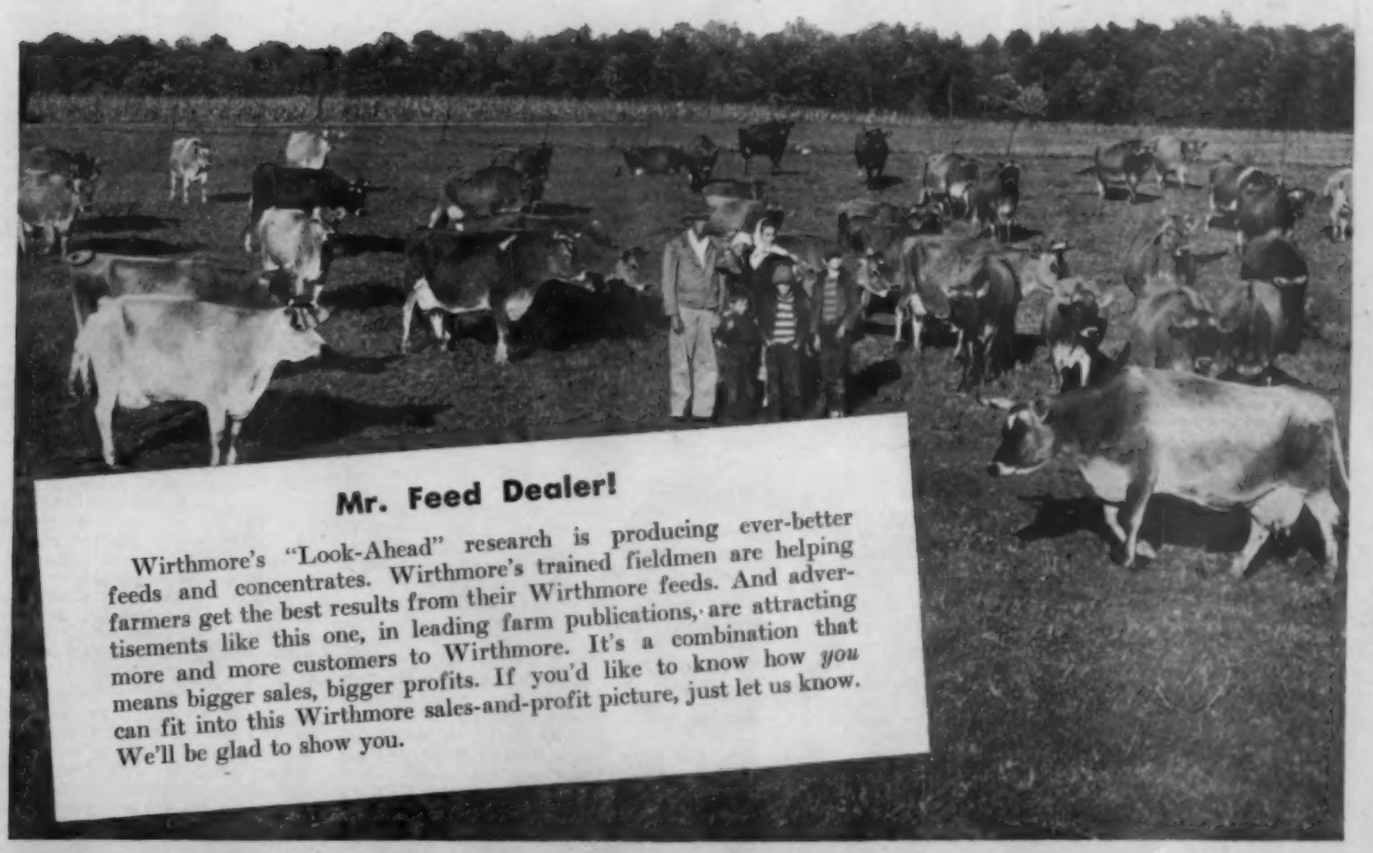

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MARYLAND

(Continued from page 104)

ture was lowered below 60° F. Less efficient conversions also were produced at 90° F. Similarly, maximal growth was obtained at 60° F. with poorer growth at 50° F. and 90° F., respectively.

"A slightly better response was obtained with the lower C/P ratios at all temperatures, with 60° F. being optimum for all C/P ratios used," he said.

STUDIES ON EGG SHELL QUALITY—Dr. N. V. Helbacka noted that this year's studies at Maryland are concerned with various types and amounts of calcium in the ration. Variables in the study are calcium lactate, lactose, vitamin C, calcium lactate plus vitamin C and three levels of calcium carbonate in the ration. Also, two levels of vitamin A were added.

He reported the data obtained has not been subjected to a statistical analysis but certain trends are evident. A marked effect was noted in the pens that had the calcium level of the ration raised. The level of calcium in the control pen was 2.25% and the two other pens had a level of 3% and 3.75%. The calcium lactate pen had good shell thickness, but this was not confirmed by the breaking strength measurements. However, the higher calcium levels had both good shell thickness and breaking strength.

It appeared from the research that at normal temperatures, vitamin C does not have a marked effect on shell thickness. No differences were observed in blood spots between high and normal vitamin A levels.

Another phase of the shell problem study is in progress in measurement of alkali reserve of the hens. In this connection, it was noted that calcium levels may not be adequate in some diets. Possibly even though hens have access to additional calcium in the form of shells or other forms, they may not consume adequate amounts voluntarily. Work with alkali reserve shows that there is a drop in this component of the blood along with a drop in shell thickness. The relationship between these two factors has not been established.

Addition of kelp ash to laying diets did not show that the ash was of any value. It had been thought that there might be a lack of some unknown mineral.

RESTRICTED FEEDING OF PULLETS — Dr. Henry L. Fuller, University of Georgia, noted that while it appears on the surface that consistent results in studies of restricted feeding of replacement pullets are the exception rather than the rule, "a careful examination of the data reveals many points of agreement.

"It is generally agreed," he said, "that restricted feeding during the growing period reduces body size and delays onset of production, depending upon the severity and duration of restriction . . .

"Reports are consistent in showing that where production is delayed, egg size increases rapidly with a tendency for pullets to lay the same size egg on any chronological date . . .

"It is safe to say that under some conditions both egg production and laying house mortality may be affected by restricted feeding. As a general rule, production on an individual basis is affected very little by restricted feeding. Where production is reported on a hen-housed basis, it will obviously be affected in proportion to the incidence of laying house mortality. Many of the experiments showing a reduced laying house mortality for restricted pullets employed high energy rations in the growing period. In such cases there would probably be a difference in obesity, which may account for differences in mortality, especially if the pullets were housed during or just prior to the advent of hot weather. It becomes obvious that even in well controlled experiments, variations in environment or design between experiments may actually involve dependent variables which can and do account for apparent differences in results."

Regarding methods of restriction, Dr. Fuller said that similar results have been obtained from various methods without any distinct advantage of one over the other.

Experiments at the University of Georgia have shown a distinct advantage for restricting the feed intake of growing pullets at some time during the starting or growing period. Restriction for the entire period proved to be too severe.

"In a current experiment now in its second year," he explained, "we have attempted to determine the best time to restrict pullets and the optimal duration of the restricted period."

The experiment has shown that growth rate was reduced in accordance with the severity of restriction which progressed with the age at which the restriction was imposed. Restriction to 24 weeks of age caused a delay of 4-5 weeks in sexual maturity, but egg production, egg size and body weight made a "remarkable recovery" after the restriction was removed.

"After 1½ years of production," Dr. Fuller reported, "the most severely restricted groups were laying at a consistently higher rate than the controls when figured on either a hen-day or hen-housed basis. Laying house mortality did not appear to be affected greatly by restriction."

Nitrofurans Control Infections in Poults

CLEMSON, S.C.—"Spectacular results" have been reported in the control of two Salmonella infections in turkey poults with two experimental water soluble nitrofurans at Clemson College Agricultural Experiment Station.

Dr. Bert W. Bierer, poultry department veterinarian, reports the two nitrofurans were "spectacular in their control of Salmonella typhimurium and artificially induced fowl typhoid. A favorable response occurred with the same drugs in controlling Salmonella heidelberg infection, but the results were less spectacular."

He said the experimental nitrofurans and the check drug (mixed in feed) were effective against the typhoid and typhimurium when used prophylactically, or prior to the introduction of infection. They also were effective therapeutically against the same infections, but were less spectacular, he added.

"In natural outbreaks of these diseases, both prevention and treatment therapy are applied when the drug is administered, since the majority of the birds in a flock probably have not been infected at the time of treatment," Dr. Bierer said.

Ad Agency Named

PASADENA, CAL.—J. W. Christopher, Inc., has been named advertising agency for the Ray Ewing Co., feed supplement manufacturer, according to an announcement by Paul Krueger, advertising manager of the firm.

The Ewing company recently moved to larger facilities in Pasadena. Promotion plans include advertising in publications that reach the feed manufacturing industry.

FEED FIRM INCORPORATED

ALBUQUERQUE, N.M. — Feed & Ranch Supplies, Inc., has filed articles of incorporation to deal in livestock and poultry feeds, listing $72,000 capitalization and these incorporators: P. L. Jones, Sid Popkin, Earnest Knott and J. L. Powell.

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Claude J. Neville

John R. Hersey

Bartlett & Snow Co. Officers Are Elected

CLEVELAND — Claude J. Neville, formerly executive vice president and treasurer, has been elected president and general manager of C. O. Bartlett & Snow Co.

Other officers elected include: H. S. Hersey, formerly president and general manager, elected chairman of the board of directors; John R. Hersey, elected vice president and treasurer, and F. W. Neville, elected purchasing director and assistant secretary.

C. O. Bartlett continues as vice president and sales manager; B. A. Smith is vice president, secretary, and director of engineering, and H. A. Christy is vice president and director of manufacturing.

The company is a designer and builder of Triumph corn shellers, ear corn and small grain handling systems, rotary driers, coolers, calciners and kilns, and bulk material conveying, processing and screening equipment.

Hooker to Build Phosphorus Furnace

NIAGARA FALLS, N.Y. — Appropriation of $6,373,000 for construction of a third phosphorous furnace to reduce phosphate rock at the Columbia, Tenn., plant of the Hooker Chemical Corp. phosphorus division has been approved by the board of directors.

The expenditure will also cover the addition of one extra large kiln and revamping and improvement of the entire materials handling system. Construction should be completed during the third quarter of 1961, company officials said.

The new electric furnace will add 20,000 tons per year of elemental phosphorus capacity to the firm's present capacity of 45,000 tons per year at Columbia and 6,000 tons per year at Niagara Falls.

The division, with headquarters and a plant at Jeffersonville, Ind., also has plants at Adams, Mass., and Dallas, Texas, all supplied with phosphorus from Columbia.

GMI Names Head of California District

OAKLAND, CAL.—General Mills, Inc. has recently appointed C. P. Wieneke sales manager for Larro Feeds in its central California district. He will supervise sales operations from district headquarters in Oakland.

C. P. Wieneke

Mr. Wieneke has held several feed sales assignments during the 15 years he has been with General Mills. He was a salesman in the Portland and Seattle districts, sales manager in the Honolulu and Seattle districts, and, for the past two years, he has been assistant to the general sales manager for Sperry (western) operations in San Francisco.

In his new post, Mr. Wieneke will take over one of General Mills' largest feed sales districts.

Hormone, Pellet and Tapeworm Research Reported at Nebraska

MITCHELL, NEB. — Hormones, pellets and tapeworm control highlighted the annual Feeders Day at the Scotts Bluff Experiment Station.

Those attending viewed 98 head of experimental cattle and 600 lambs, according to Lionel Harris, superintendent of the station. Several members of the College of Agriculture staff at Lincoln were on hand to discuss experimental results.

In lamb studies, there appeared to be no advantage in pelleting hay under limited feeding programs. However, full-fed lambs gained almost twice as much when hay was pelleted, reported Dr. Donald Clanton, assistant professor of animal husbandry. Lambs on limited feed gained .33 lb. per day while those on full feed gained .51 lb. per day.

"The reason for this is that lambs can eat more when hay is pelleted," Dr. Clanton said. "The cost of pelleting will determine whether to pellet feed."

In another lamb feeding trial, use of silage for roughage gave higher gains than long or chopped alfalfa. Daily gains on silage totaled .40 lb.; long alfalfa, .29, and chopped alfalfa, .32. Soybean oil meal must be fed with silage to increase the protein content of the ration, Dr. Clanton explained.

Dr. George Kelley, associate professor of veterinary science, said that the antibiotic hygromycin can control tapeworms in the livers of western lambs. In addition, studies show that treated lambs gain .2 lb. more per day than untreated. The antibiotic should be fed during the first 30 days in the feedlot.

He cautioned that hygromycin has not been approved for use in lamb feeding. However, the antibiotic is approved for hogs.

Dr. Kelley reported that 30% of the lambs grown in states west of Nebraska have tapeworms in their livers. Nebraska-grown lambs do not have these tapeworms, he said. The meat inspection service at packing plants picks out and condemns livers with tapeworms as unfit for human consumption.

Scotts Bluff studies show that beef cattle implanted with the hormone synovex at the beginning of the fattening period made greatest gains. These cattle also produced greatest gains in the over-all beef production program, said Dr. Johnny Matsushima, associate professor of animal husbandry.

Eastern States Signs 160 in Egg Program

WEST SPRINGFIELD, MASS. — More than 160 Eastern States members have signed egg production agreements, representing approximately 10,000 cases per week at 60% production rate, according to W. D. Milsop, Eastern States Farmers Exchange, Inc., general manager.

"This represents a very satisfactory acceptance of the agreement program by larger producers and contributes substantially to the organization's ability to develop market outlets," said Mr. Milsop in a recent issue of the Eastern States Cooperator, the exchange's publication.

Mr. Milsop points out that the marketing agreement between the members and the cooperative guarantees to fulfill the needs of the producer 52 weeks of the year, and in turn, the cooperative looks to members for a steady weekly supply.

The producer agrees "to market his eggs through the cooperative regularly, maintain quality at least at 90% Grade A and maintain a basic flock of 2,000 layers or more," Mr. Milsop said. "For this the member is entitled to a premium, which he receives in the form of higher prices for agreeing."

Phil Raynard

David E. Peck

Foxbilt Sales Promotion Director Is Appointed

DES MOINES, IOWA — Appointment of Phil Raynard as sales promotion director of Foxbilt Feeds, Des Moines, has been announced by E. L. Fox, president. Mr. Raynard has been with the company for 11 years, most recently serving as a division sales manager.

Mr. Raynard succeeds David E. Peck, who will retire effective March 31. Mr. Peck has been in agricultural sales promotion work since 1912 and has been active in the feed industry since 1922. He joined Foxbilt in 1937 as sales manager, and in 1950 became vice president of the company.

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GFDNA Discusses Grain Grades

KANSAS CITY—Proposed changes in grain sorghum grades, a discussion of soybean damage from stink bugs, consideration of how to designate re-cleaned wheat and the problems of moisture testing a mixture of old and new corn, were the topics that received attention during the meeting of the Committee on Uniform Grade of the Grain & Feed Dealers National Assn. at the GFDNA convention.

Ralph Brown, Cleveland Grain Co., Indianapolis, Ind., chairman of the committee, presided. A number of U.S. Department of Agriculture grain officials and scientists were present, including B. W. Whitlock, director of the grain division, Agricultural Marketing Service, and Dr. Lawrence Zeleny, chief of the standardization and testing branch for the grain division of USDA at Beltsville, Md.

Dr. Zeleny presented proposed changes for grades of grain sorghums. He said there seemed to be a need for tightening up the standards because currently the lower grades are hardly used. The proposals on test weight called for increases of 3 lb. per bushel for No. 1, No. 2 and No. 3 and a 2 lb. increase for No. 4. Moisture proposals called for dropping moisture content several percentage points. Dr. Zeleny said he thought the moisture content of No. 2 should be low enough to permit storage year around.

Members of the grain trade present said they had no objections to changes in moisture and test weight. They did, however, object to proposals for reducing the percentage of cracked kernels, foreign material and other grains. They pointed out that the drying and handling that occurs in the grain sorghum area, particularly around Kansas City, results in considerable cracked milo, and a reduction in the allowable percentage would cause a large amount of downgrading unnecessarily.

Grain men also made a plea to the USDA officials to designate all grain sorghum as milo since that is the term used almost universally in the trade.

The problem of grading for stink bug damage of soybeans was brought up by mid-south grain interests. They asked that some agreement be reached as to whether stink bug damage should or should not cause a down-grading.

The problem of moisture testing on a mixture of four or five-year-old corn with new crop wet corn was brought up by the trade. It was pointed out that the standard electric moisture-testing machines do not give an accurate reading on this type of mixture. Several of the trade suggested that the Brown-Duval method of moisture testing would give a more accurate reading.

Another problem mentioned concerned cracked corn. The recent trend of early harvesting and drying under high temperatures has resulted in brittle corn that cracks easily when handled, it was said. It was suggested that an effort be made to get college extension people to urge lower drying temperatures.

New Lab Division

MADISON, WIS. — Walter B. Griem, chemist in charge of the feed and fertilizer laboratory of the Wisconsin Department of Agriculture, has been named to head a new general laboratory division in the department, the State Board of Agriculture announced.

The new division will supervise the department's feed, seed, fertilizer, dairy, food and toxicology laboratories.

Donald N. McDowell, department director, said the new unit would give the department coordinated effort "in testing and analyzing the great number of chemicals now being used."

Assigned to Toronto By Richardson Scale

CLIFTON, N.J.—Officials of Richardson Scale Co. have announced the assignment of John Hageman to the Toronto, Canada, area.

John Hageman

Mr. Hageman will complement the activities of the firm's Montreal office, which is managed by John Beland, and will also lend support in the grain, feed, and cereals industries to Sullivan Mill Equipment, Ltd., Toronto, Richardson's Ontario agents.

For the past 20 years, Mr. Hageman has been manager of Richardson's Buffalo district office and will continue to operate from Buffalo.

H. L. Colwell to Retire As Purina Plant Head

ST. LOUIS — Harry L. Colwell, manager of the St. Louis Chow plant of the Ralston Purina Co., has announced his retirement effective May 1, following approximately 30 years service with the company.

According to an announcement by David L. Grant, manufacturing vice president, Mr. Colwell will be succeeded as plant manager by R. E. Rowland, Jr., assistant plant manager.

Mr. Colwell joined the Ralston Purina Co. in 1930 at the Fort Worth, Texas, plant. He has been manager at St. Louis since October, 1944.

Mr. Rowland joined the company as a trainee in Kansas City in 1954. He was in military service from February, 1955, to March, 1957. In October, 1957, he transferred to the St. Louis plant as a buying trainee. He later became buyer for the plant, then office manager. He has been assistant manager since January, 1959.

Less Cattle on Feed In Arizona, California

WASHINGTON—There was a 12% drop in number of cattle and calves on feed for market March 1 in California and Arizona compared with a month earlier, according to the U.S. Department of Agriculture's Crop Reporting Board. The total dropped from 825,000 head to 727,000.

USDA said a total of 492,000 head of cattle and calves were on feed for market in California on March 1, a 15% decline from Feb. 1. Placements of cattle and calves in feedlots during February at 76,000 head compared with 72,000 in January. Fed cattle marketed from California feedlots during February amounted to 162,000 head—3% more than marketed in January.

On March 1, there were 235,000 head of cattle and calves on feed for market in Arizona—5% below the 247,000 head on feed Feb. 1. Cattle and calves placed on feed during February amounted to 21,000 head, compared with 14,000 head in January. Marketings of fed cattle during February totaled 33,000 head, compared with the 32,000 head marketed in January.

Reminded of Poultry Disposal Pit Deadline

ATLANTA, GA. — Georgia poultry producers have been reminded by Phil Campbell, commissioner of agriculture, that April 1 is the date agreed upon by the processors to stop accepting birds from growers without certificates showing they have built the proper disposal pits.

The livestock inspection division of the veterinary department of the Department of Agriculture, headed by John N. McDuffie, has the responsibility of checking on growers to see that they are complying with the regulations concerning making adequate disposal pits for dead chickens. The division has mailed literature containing plans for a disposal pit to all processors and feed dealers.

There is no law to force growers to dig disposal pits, but processors have agreed not to take any chickens from growers not complying with the regulation.

Purina Entertains Game Breeders Group

ST. LOUIS — Ralston Purina Co., St. Louis, entertained members of the North American Game Breeders Assn. attending the group's annual national convention in St. Louis recently.

Purina sponsored a banquet at the company's headquarters, after which the visitors were entertained with a performance of the Purina Farm Show.

The game breeders association represents leaders in the business of breeding and growing pheasants, quail, chukar partridge, mallard ducks and other game birds. Nearly every state in the U.S. was represented at the convention.

Some of the delegates to the convention were operators of commercial shooting preserves. Methods of simulating natural hunting conditions on shooting preserves was a prominent topic of discussion at the convention.

Featured speaker at the Purina banquet was Dr. R. M. Bethke, research vice president of Purina.

Medicated Layer Feed Studied in VPI Tests

BLACKSBURG, VA.—Poultry scientists at Virginia Polytechnic Institute have completed an investigation of the effect of zinc bacitracin on layers under field conditions.

The test involved more than 2,000 Leghorn-type layers, and was set up to find the effect of zinc bacitracin on egg production, shell quality, yolk mottling and mortality from the 10th to the 14th month of production.

The scientists used the zinc bacitracin at the rate generally used by the poultry industry—20 gm. per ton of feed, according to a VPI report.

The researchers reported "no significant difference for percentage of egg production, yolk mottling and mortality between the flocks receiving medicated feed and those receiving non-medicated feed." However, in one group of birds studied, there was a difference in shell thickness in favor of zinc bacitracin.

Heads Technical Sales Engineering for Daffin

LANCASTER, PA. — Joseph L. Grahek has been named manager of technical sales engineering for Daffin Manufacturing Co., Lancaster, according to Irl A. Daffin, president.

J. L. Grahek

The Daffin firm builds a line of industrial materials processing and handling equipment including grinding mills, batch mixers, pelleting machines and pneumatic conveyors. Mr. Grahek received a degree in Civil engineering at the University of California. From 1936 to 1951 he was sales manager of the dry feeder division of Wallace & Tiernan, Belleville, N.J. He joined Sprout, Waldron & Co., Muncy, Pa., in 1951 as pelleting division sales manager, and in 1957 became chief engineer of the pelleting division.

TOP FEED DEALER—Wesley Ballmann (left), is shown presenting a wrist watch to Cole Townley, Longview, Texas, for being named the Southwest's top Texo Feeds dealer. Mr. Ballmann is co-manager of Burrus Feed Mills, manufacturer of Texo Feeds. Mr. Townley, Texas A&M graduate and rancher, showed the greatest percentage increase in sales last year of any distributor in the southwestern area which the mill serves. This was his first year in the business. The annual "Self-Starter" award was presented during a dealer meeting at San Antonio.

Pendleton Feed Mill Is Dedicated by PGG

PENDLETON, ORE. — More than 700 persons attended the dedication of the Pendleton Grain Growers new million dollar feed mill at Feedville, two miles south of Hermiston. The dedication of the plant, described as "the most modern and efficient feed milling facility to be found anywhere," followed a PGG stockholders meeting and luncheon.

Jim Hill, Jr., manager of PGG, was master of ceremonies. He said that the mill is designed to manufacture feeds at a capacity of 30 tons per hour. He said the mill is expected to go into operation in two months.

Workers' Earnings Up

SAN FRANCISCO—Production workers in grain mills in California increased their average weekly earnings during January to $105.78 from $104.08 in December, according to estimates of the division of labor statistics and research of the California State Department of Industrial Relations. Earnings during January of last year were $102.24 on the average.

Average hourly earnings had gone up to $2.58 for the month, from $2.52 in December and $2.44 the previous January, and the average length of the work week dropped a few minutes from 41.3 hours in December to 41.0 hours. In January of 1959 the average work week was estimated at 41.9 hours.

Lito Law Dies

BUFFALO — Lito Law, 78, retired branch manager of the James H. Gray Milling Co. of Gowanda, died recently in his home. Mr. Law was a native of Gowanda and active in the community's government and civic affairs. He was a graduate of Adelphia Academy in Brooklyn, and received a mechanical engineering degree from Cornell University.

Mr. Law began his career prospecting in Wyoming and California. After graduation from college he worked on the Gotham Tunnel in New York City and in 1911 founded and operated the Law & Wilber Feed Mill. The firm was bought by J. H. Gray Milling Co. after World War I, and Mr. Law continued as manager.

JOINS SALES STAFF

GAINESVILLE, GA.—Lenward O. Welch has been appointed to the sales staff of Lanier Feed Mill at Gainesville. He has been in the poultry industry for the past 13 years. For 10 years before joining Lanier as combination sales and serviceman, he was a field man for Blue Ridge Feed Store.

CSS DIRECTOR

(Continued from page 4)

justice department was aware of the Senate hearing and made no request for delay in the proceedings.

Mr. Corey served as the CSS regional director from 1955 until his resignation last January. In testimony before the Senate subcommittee, he explained his entrance into a general partnership in 1956 to form a grain storage business, also acknowledging his awareness of a grain storage contract later for the firm. He further told the committee that he was never informed by USDA officials of the "conflict of interest" rules against such activities until a few weeks prior to sale of his interest in the grain firm in 1959. Following receipt of a code of ethics from USDA early in 1959 banning officials from holding conflicting private interests, he decided to divest himself of his grain firm holdings, Mr. Corey told the committee.

Explanation

Mr. Corey explained to the subcommittee how he entered, as an investment, into operation of the grain storage firm, Three State Warehouse Co., with a one third interest. This firm later received contracts for government storage. Subcommittee records indicate that Mr. Corey's profits from this venture totaled somewhat more than $83,000, out of which he repaid $30,000 originally advanced to him when the business was formed.

Regarding Mr. Corey's other interests, the malting company, he informed the committee that he purchased, with his own money, 303 shares of California Malting Co. through a Portland investment man and a West Coast executive of Archer-Daniels-Midland Co. On this investment, it was brought out, Mr. Corey's original holdings of $3,030 appreciated to a valuation of $33,633.

U.S.I. Morea Field Representative Named

NEW YORK—Stephen Dawson has been appointed as a field representative for Morea liquid livestock feed supplement sales, according to U.S. Industrial Chemicals Co., division of National Distillers & Chemical Corp.

Stephen Dawson

Mr. Dawson will help develop the market for Morea liquid feeds for ruminant animals in leading livestock and dairy areas along the eastern seaboard. His principal responsibility, the company said, is to promote premix sales to mixer-distributors who will blend and sell the final product to feeders and farmers.

He has 10 years experience in the agricultural field. He served as a veteran-on-farm training adviser for three years and spent seven years with the U.S. Department of Agriculture in Pennsylvania.

Egg Quoting Changed

OKLAHOMA CITY — The practice of quoting egg prices according to towns and regions in Oklahoma was discontinued March 1, Jack M. Cornelius, Jr., president of the state's board of agriculture, has announced.

In the future, he said, prices will give a range from across the state, including the high and low extremes.

Mr. Cornelius said surveys indicated there was a wide variation in egg prices around the state and that the spreads were not limited to any certain sections.

Swine-O-Meter Is Developed by SIU

CARBONDALE, ILL.—With swine production becoming more specialized and complex, hog farmers in the future may save a lot of head scratching, calculating and confusion with a simple gadget, called a management Swine-O-Meter, a recent brainstorm of Dr. Joseph E. Burnside, Southern Illinois University swine specialist.

The instrument is being patented by the SIU Foundation, a non-profit corporation receiving and administering gifts for the benefit of the university. Kenneth R. Miller, executive director of the foundation, said conferences are underway with a number of firms showing an interest in the Swine-O-Meter and that the foundation plans to offer exclusive contracts for the instrument to an individual concern in each of three fields—farm equipment, feed and textbook publishing. A packet of swine management materials will be offered with the Swine-O-Meter, Mr. Miller said.

Income derived from the invention will be shared by the foundation and the SIU animal industries department, the latter portion being used to further swine research.

Dr. Burnside said the device is a type of circular slide rule and will be especially valuable to those producers who follow an early weaning-multiple farrowing system. By setting a rotating disc, calibrated in days and months, to the hog breeding date all other dates for production and management practices are shown at one setting. These include the scheduling of such multiple farrowing practices as breeding, weaning, vaccinating, castrating and marketing. The other face of the Swine-O-Meter provides in condensed form suggested recommendations and information on swine housing and management as well as a calculating device for converting pig weaning and marketing weights to the standard 56 and 180 day weights.

Workers Reject Union

FOREST, MISS. — Employees of Cudahy Packing Co. rejected the Amalgamated Meat Cutters and Butchers Union as their bargaining representative March 16.

The vote, registered in an election called by the National Labor Relations Board, was 65 against the union and only 33 in favor.

It was the first union election ever held in Forest. The election was ordered by the labor board after a hearing several weeks ago on a petition filed by officials of the union. Previously, the board has dismissed complaints of the union against unfair labor practices at Cudahy.

The only other plant organized by the Butchers Union is the Swift & Co. poultry plant in Jackson.

Under regulations of the labor board the union cannot have another election for 12 months.

To Head Marketing Research for Dawe's

CHICAGO — Appointment of Murray Appelbaum as marketing research manager has been announced by Dawe's Laboratories, Inc.

Mr. Appelbaum was formerly assistant marketing research manager for Armour & Co. He holds a master's degree in business administration from the University of Chicago.

FEED MILL EXPANDED

CALDWELL, IDAHO — A $30,000 expansion in the feed mill of the Richardson Feed Lots, Caldwell, has increased the capacity of the lots by 50%. A total of 15,000 cattle can be handled at one time, compared to 10,000 before, reports W. C. Richardson, owner. Capacity of the barley rolls in the mill has been doubled.

Named to Allied Mills Advertising Position

FT. WAYNE, IND. — George R. Addington has been named assistant director of advertising and sales promotion for Allied Mills, Inc., according to Richard Green, director of the division.

G. R. Addington

Mr. Addington comes to his new position in Ft. Wayne from Ft. Worth, Texas, where he has been advertising manager of the firm's Texas operation. His new duties will cover advertising and promotion projects in the 34-state company distribution area.

Before joining the company, Mr. Addington was on the national advertising staff of the Ft. Worth Star-Telegram and representative of the Texas Ranch & Farm publication. In 1952 he joined Simmonds & Simmonds Advertising Agency as an account executive, and in 1954 entered the feed business as advertising manager for Universal Mills, Ft. Worth, until the company's purchase by Allied Mills in 1958.

FEED SALES SOMETHING TO CHIRP ABOUT

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MARION, ILL.—Anyone who says the feed business here is "for the birds" and "pretty squirrelly" is pretty close to right.

A record deluge of snow has inspired area residents to buy food for birds and squirrels, and feed sales boomed, according to a Marion dealer. "Customers are buying from 5-50 lb. of feed at one time," he reports.

An area radio station gained 500 pledges from persons joining the "Feed the Birds" Club. Officials at the Crab Orchard Fish and Wildlife Refuge near Marion distributed about 800 bu. of grain to approximately 31,000 Canadian geese at the refuge.

TOP OF THE HOPPER

(Continued from page 2)

THE AMERICAN FEED MANUFACTURERS ASSN. is taking the lead in bringing together food, feed and related industries in a voluntary effort to try to bring about a practical and realistic policy to govern the use of agricultural chemicals. The first meeting was held this week in Chicago. It is apparent at this point that some broad-scale, joint effort of this type is definitely needed.

WITH THE HELP OF A PROMINENT cartoonist, Frank T. Heffelfinger II, Peavey Feed Mills, has produced for the national feed committee of the Grain & Feed Dealers National Assn. a booklet, "Career Sense," which will serve a useful purpose in helping orient new feed industry employees. The booklet, humorously illustrated by Cartoonist Osbon, who illustrates U.S. Navy training manuals, tells the new man what is expected of him, what he should expect from the boss and why he should be proud of his career in serving agriculture. The feed committee, of which Mr. Heffelfinger is chairman, gave the first draft of the booklet its hearty approval last week, and a production schedule is expected to be announced soon. Other "sense" books possibly will be produced to help inform and instruct feed mill employees if this first one is well-received. We predict it will be, as it fills a definite industry need.

THE SUGGESTION IN THIS COLUMN last week that it might be a good idea to stockpile monkey food for feeding humans in case of a wartime disaster prompted this comment: "If people are stupid enough to get involved in an atomic war, monkey food probably would be most appropriate for getting the whole cycle started over again."

HERE'S ONE MAN'S VIEW on the broiler situation. It's a view expressed to county agents and vocational agriculture instructors through the publication "County Agent and Vo-Ag Teacher."

In an article in the magazine on "The Broiler Mess," Dr. Robert C. Baker, professor of poultry husbandry at Cornell University, says that the "real answer is for all feed companies to get out."

Dr. Baker (in processing, not in nutrition, at Cornell) wrote: "If all of the feed people would get out of the broiler business, the industry should get back to the point where the law of supply and demand can operate. I realize that it isn't easy for many big companies to get out of financing, because when they do it, it might mean losing their feed business to someone else. It seems imperative to them to stick as long as they possibly can.

"The real answer is for all feed companies to get out at once. This will be a shock for a short time, but then we can start all over again without financing and have a good sound industry. Getting every feed company out of financing at once may seem impossible, but I believe that it can be done. Personally, I feel it is better to do it now before everybody goes broke."

Feed men may be interested in some of Dr. Baker's other comments on feed firms in the broiler business:

". . . Feed people are running the broiler business, and it just isn't working. In theory integration looks good. The weak link in the chain is supply. Every feed company in an integrated setup tries to move more feed than its competitors. This increases production and drives the price down. Finally feed companies find that their margins are being cut on feed. The only logical answer is to move more feed, and this means financing more broilers. This becomes a vicious cycle, and broiler prices drop and drop. How far down can they go? Well, I think we will soon know. . .

"Feed people don't have to make a profit on broilers, but they do want a fair price for their feed. This means the private enterpriser doesn't have a chance . . . When a private individual loses money, it doesn't take long for him to respond, and he soon gets out of business. Unfortunately, many feed companies can take low broiler prices for a long time."

Probably not all feed men will agree with that statement.

The FEED MARKET

PRICE QUOTATIONS, MARKET TRENDS
OF PRINCIPAL INGREDIENTS

NOTE: Quotations on feed ingredients shown in these and adjoining columns are wholesale prices, per ton, bulk, for prompt delivery, unless otherwise noted. They are the latest quotations available from Feedstuffs correspondents and are not necessarily those in effect on date of publication. The prices represent fair average trading values and do not necessarily represent extreme low or high levels at which individual sales might have occurred. A descriptive summary of supply and demand factors prevalent in the feed market appears on page 2.

A AND D FEEDING OIL

Chicago: Demand fair; trend steady; supply ample; straight A feeding oil, with 10,000 units vitamin A per gram, 7@7½¢ a million units of vitamin A, l.c.l., packed in 55-gal. drums, f.o.b. Chicago, drums included.

Denver: Demand fair; trend steady; supply ample; 2,250 A, 300 D 23¢ lb., f.o.b. Denver.

Boston: Demand and supply steady; 400 D, 3,000 A 21½¢ lb.; 300 D, 3,000 A 22¢; 300 D, 2,250 A 19½¢; 300 D, 1,500 A 18¢; 300 D, 750 A 16¢; 75 D, 750 A 15½¢.

New York: Demand fair; trend steady; supply ample; 1,500 A, 300 D 16¢ lb.; 2,250 A, 300 D 17½¢ lb.

Minneapolis: Demand fair; supply ample; 10,000 A 24½¢ lb.; 300 D, 2,250 A 18½¢ lb.; 300 D, 1,500 A 17½¢ lb.; 300 D, 750 A 16¢ lb.

ALFALFA MEAL

Buffalo: Demand and supply fair; trend steady; $71, sacked, Boston.

St. Louis: Demand slow; trend steady; supply ample; suncured, 13% fine, sacked $44; dehydrated, 17%, 100,000 A pellets, demand fair, trend steady, supply ample, bulk $57.

Chicago: Demand and supply fair; trend steady; 17% protein, dehydrated, with 100,000 units vitamin A $57.50@58.50; 13% protein, suncured $40.50@41.50.

New Orleans: Demand fair; trend steady; supply adequate; 17% protein, 100,000 vitamin A $64@65 bulk, $67@68 sacked.

Los Angeles: Demand fair; trend unchanged; supply adequate; dehydrated meal, 17% protein, 100,000 A $55@56; dehydrated pellet meal, 17% protein, 100,000 A $57@58; suncured meal, 15% protein $51@52; suncured crumbles, 15% protein $53@54.

Omaha: Demand good; trend steady; supply tight; 17% dehydrated, 100,000 A units, bulk pellets $51; sacked meal $56, Omaha basis.

Cincinnati: Demand fair; trend steady; supply adequate; 17% dehydrated, 100,000 vitamin A $63@64.

Memphis: Demand fair; trend steady; supply ample; dehydrated, 17% protein, guaranteed 100,000 units vitamin A $55.50.

Portland: Demand fair; supply ample; trend unchanged; suncured, 15% $45; dehydrated $68.40.

Philadelphia: Demand slow; supply fair; 17% dehydrated $68.50.

Ft. Worth: Demand good; light offerings for immediate delivery; sacked: dehydrated, 17%, 100,000 A $65.50 rail, $66 truck; suncured 13%, ¼-in. grind No. 1 $46@48 truck; 15% fine ground dry $50, with 2% fat added $52 rail or truck.

Boston: Demand and supply steady; supply adequate; 17% $56.50, sacked; 17% pellets $69, bulk; suncured 13% pellets $47 bulk.

Denver: Demand fair; trend steady; supply ample; $54, sacked meal; $52, bulk pellets.

Kansas City: Demand slow; trend steady; supply adequate; 17% dehydrated alfalfa, guaranteed 100,000 A on arrival, pellets $51@52 bulk, reground pellets $53 bulk; 18% dehydrated alfalfa, guaranteed 125,000 A on arrival, reground pellets $56 bulk; 20% dehydrated alfalfa guaranteed 150,000 A on arrival, reground pellets $63; suncured alfalfa, demand slow, supplies ample, 13% pellets $35@35.50 bulk, No. 1 ¼-in. $37@37.50, No. 2 ¼-in. $35 sacked.

Minneapolis: Market steady; demand remains slow; 17% dehydrated, 100,000 units vitamin A reground pellets $57; oiled reground pellets $59.

ANIMAL FAT (STABILIZED)

Chicago: Demand good; trend firm; supply fair; bleachable fancy tallow, tank, truck or carlots $5.62½ cwt.; yellow grease $5 cwt.

New Orleans: Demand fair; trend easy; supply adequate; 5½@6¢ lb., tank cars.

Ogden: Supply ample; $5.50 cwt.

Louisville: Demand fair; trend strong; supply good; bleachable white 5¾¢ lb.; white tallow 5¼¢ lb.; yellow grease 5¾¢ lb.; all in tanks.

Ft. Worth: Demand good; supply limited; prime tallow, tank cars 5¾¢ lb.; drums 6¾¢ lb., f.o.b. north Texas packing plants with returnable drums.

San Francisco: Demand fair; supply ample; bleachable fancy 6¼¢ lb.; yellow grease 5¼¢ lb.

Boston: Demand improved; supply good; tallow 6¢ lb.; yellow grease 5¾¢ lb.

Kansas City: Demand good; trend steady; supply ample; stabilized prime tallow 5¾@5¼¢ lb.

St. Paul: Price gain of ¼¢ this week on bleachable fancy; feed demand good; supply still was classed as ample, but production is down considerably from past weeks; market now stands at 5¾¢ lb., f.o.b. producer's plant.

BARLEY FEED

Chicago: Demand fair; trend steady; supply ample; $37, sacked.

Baltimore: Demand fair; trend firm; supply adequate; $47.50, sacked.

New Orleans: Demand slow; trend unchanged; supply adequate; $50@51.50, sacked.

San Francisco: Demand fair; supply ample; rolled $60, ground $59.

Philadelphia: Demand slow; supply fair; $46.

Ogden: Supply good; rolled $45@46; whole barley $40@41.

Los Angeles: Demand slow; trend unchanged; supply adequate; standard rolled $2.90 cwt., standard ground $2.90 cwt., both sacked.

Portland: Demand slow; supply ample; trend unchanged; rolled $53; ground $51.

Denver: Demand fair; trend slow; supply good; rolled $2 cwt.

Boston: Demand slow; supply ample; $48, sacked.

BENTONITE (SODIUM)

Cincinnati: Demand steady; supply adequate; f.o.b. Cincinnati, minimum 30 ton carlots: 80 granular $31.50; less than carlots $40; 200 mesh fine $31; less than carlots $40.

Chicago: Demand fair; trend steady; supply ample; f.o.b. Wyoming and South Dakota shipping points: granular, 30 mesh $16.50; fine granular, 80 to 100 mesh $13.75; powder, 200 mesh $13.50, f.o.b. Belle Fourche, S. D., minimum 30-ton carlots, 80 granular $13.50 net; 200 mesh, fine $13.25, net.

Denver: Demand fair; trend slow; supply ample; $22.50, f.o.b. Denver.

BLOOD FLOUR

Louisville: Demand fair; trend steady; supply good; $82.50@87.50, sacked.

BLOOD MEAL

Chicago: Demand fair; trend firm; supply ample; 80% protein, 100 lb. sacks $120.

New Orleans: Demand slow; supply ample; trend steady; $82.50@87.50, sacked.

Omaha: Demand good; trend strong; supply fair; 80% $100, sacked, Omaha.

Louisville: Demand fair; trend steady; supply ample; $82.50@87.50, sacked.

Los Angeles: Demand good; trend firm; supply tight; $6.25 a unit of ammonia, sacked.

Ogden: Supply normal; $90 ton, 100 lb. bags, f.o.b. Ogden.

Portland: Demand slow; supply ample; trend unchanged; $112.

San Francisco: Demand and supply fair; $6.25 a unit of ammonia, sacked.

BONE MEAL (STEAMED)

Louisville: Demand slow; trend steady; supply normal; $90, sacked.

Cincinnati: Demand fair; trend steady; supply fair; $110, sacked, Cincinnati.

San Francisco: Demand good; supply ample; $75, sacked.

Portland: Demand slow; supply ample; trend unchanged; $99.

Chicago: Demand fair; trend steady; supply ample; 100 lb. sacks $102.50.

Buffalo: Demand good; trend steady; supply limited; $105, sacked.

New Orleans: Demand slow; trend easy; supply ample; $90@95, sacked.

Ft. Worth: Demand good; supply extremely light; $100, sacked, f.o.b. Ft. Worth, local manufacture; imported $95, sacked, delivered Ft. Worth, April delivery.

Los Angeles: Demand slow; trend unchanged; supply adequate; imported $82, 20 ton lots, sacked.

Denver: Demand fair; trend steady; supply ample; $109.

Boston: Demand and supply steady; $105.

BREWERS DRIED GRAINS

Cincinnati: Demand fair; trend steady; supply adequate; $43.

San Francisco: Demand fair; supply ample; $54, sacked.

Milwaukee: Demand good; trend firm; supply limited; $36 bulk, $44 sacked, both Chicago.

St. Louis: Demand good; trend steady; supply ample; $38.

Buffalo: Demand and supply fair; trend steady to higher; $46.50, Boston.

New Orleans: Demand fair; trend easy; supply good; $48@49, sacked.

New York: Demand fairly good; trend stronger; supply moderate; $46 bulk, $52 sacked, Boston.

Chicago: Demand slow; trend irregular; supply good; $35@36.50.

Louisville: Demand fair; trend steady; supply good; $48, sacked.

Ft. Worth: Demand fair; supply sufficient; 26% protein $51.90, March.

Los Angeles: Demand improved; trend unchanged; supply adequate; $50.50.

Boston: Demand good; supply steady; 26% $46, 28% $48.50.

BREWERS DRIED YEAST

Omaha: 10½¢ lb.

Louisville: Demand fair; trend steady; supply good; 10@10½¢ lb., sacked.

Cincinnati: Carlots 11¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb., sacked.

San Francisco: Demand fair; supply good; 10¢ lb., sacked.

Los Angeles: Demand improved; trend unchanged; supply adequate; 10¢ lb., 5 ton lots; 11¢ lb., 1 ton lots; 12¢ lb., less than ton lots; all sacked.

Buffalo: Demand fair; trend lower; supply ample; $3.35 cwt.

Chicago: Demand fair; trend steady; supply ample; 9½@10¢ lb., carlots, sacked; 9¾@12¼¢ lb., l.c.l.

Milwaukee: Demand fair; trend steady; supply ample; 10½@12¼¢ lb., ton lots, sacked.

St. Louis: Demand fair; trend firm; supply ample; 9½@10¢ lb., carlots, sacked; 10½¢ lb., ton lots; 11½¢ lb., less than ton lots.

Portland: Demand good; supply ample; trend unchanged; 8½¢ lb.

Denver: Demand light; trend steady; supply ample; 8¢ lb., f.o.b. Golden, Colo.

Boston: Demand and supply steady; 10¢ lb.

BUTTERMILK (CONDENSED)

Chicago: Demand fair; trend firm; supply ample; $3.50@3.75 cwt., barrels.

New Orleans: Demand slow; trend unchanged; supply adequate; $4.20@4.25 cwt., drums.

Ogden: Supply good; $4.40, 100-lb. drum.

Louisville: Demand dull; trend steady; supply nil; $4.25 cwt., paper drums included.

Los Angeles: Demand fair; trend unchanged; supply adequate; 5½¢ lb. 100 lb. lots in barrels; 4½¢ lb., 500 lb. lots in barrels.

San Francisco: Demand fair; supply good; $5 cwt., drums.

Philadelphia: Demand slow; supply light; $4.25 cwt.

Boston: Demand and supply steady; 3.09¢ lb.

CALCITE CRYSTALS AND FLOUR

(All prices net, sacked, including freight)

New York: Crystals $16.28, flour $10.28.
Buffalo: Crystals $17.11, flour $11.11.
Toledo: Crystals $18.96, flour $12.96.
Boston: Crystals $17.63, flour $11.63.
Lime Crest, N.J. Crystals $11.50, flour $5.50.

CALCIUM CARBONATE

Chicago: Demand fair; trend steady; supply ample; fine grind, plain, 100 lb. bags $9.54; bulk, in hopper cars $7.54; bulk, in boxcars $8.04; granular grind $1 premium.

Cincinnati: Demand fair; trend steady; supply adequate; $7@7.50 cwt.

Los Angeles: Demand slow; trend unchanged; supply adequate; flour $10.15, 20 ton cars, sacked; meal $11.15, 20 ton cars, sacked.

Minneapolis: Fine grind, 50 lb. bags $12.25, 100 lb. bags $11.50; bulk, boxcar $10; bulk, hopper $9.50; coarse grind $1 premium, delivered Minneapolis.

CHARCOAL

Chicago: Demand fair; trend firm; supply fair; 50 lb. multiwalls $110.

San Francisco: Demand steady; supply ample; $141, sacked.

Los Angeles: Demand slow; trend unchanged; supply adequate; hardwood poultry: $156, less than ton lots, sacked; $144.40, ton lots, sacked.

Boston: Demand and supply steady; $110.

COCONUT OIL MEAL

San Francisco: Demand good; supply tight; solvent $89.50.

Portland: Demand slow; trend lower; supply ample; $79.50.

Los Angeles: Demand slow; trend weaker; supply adequate; copra cake $73@74.

COD LIVER OIL (FORTIFIED)

New York: Demand fair; trend steady; supply satisfactory; 1,500 A, 300 D 16½¢ lb.; 2,000 A, 300 D 20¢ lb.

Boston: Demand and supply steady; 300 D, 3,000 A 22¢ lb.; 600 D, 2,250 A 20½¢; 300 D, 2,250 A 20¢; 600 D, 1,500 A 19¢; 300 D, 750 A 18½¢.

CONDENSED FISH SOLUBLES

New York: Demand good; trend stronger; supply adequate; 2½¢ lb., f.o.b. Gulf and Atlantic shipping points.

New Orleans: Demand light; trend easy; supply fair; 50% solids $42.50@45, f.o.b. Gulf.

Denver: Demand poor; trend steady; supply ample; dried $132, Denver.

Los Angeles: Demand improved; trend unchanged; supply adequate; 2¾¢ lb.

Boston: Demand and supply good; 4¾¢ lb.

CORN GLUTEN FEED AND MEAL

(All quotations for all cities are bulk basis, sacked basis $5 more)

Minneapolis: Feed $43.60, meal $64.60.
Atlanta: Feed $47, meal $63.
Birmingham: Feed $45.60, meal $66.60.
Boston: Feed $48.50, meal $69.50.
Chicago: Feed $37, meal $58.
Cleveland: Feed $44.90, meal $65.90.
Denver: Feed $47.20, meal $68.20.
Ft. Worth: Feed $45.70, meal $66.70.
Indianapolis: Feed $42.20, meal $63.20.
Kansas City: Feed $37, meal $58.
Louisville: Feed $43.60, meal $64.60.
New Orleans: Feed $46.90, meal $67.90.
New York: Feed $48.10, meal $69.10.
Norfolk: Feed $47.50, meal $68.50.

CORN OIL MEAL

Cincinnati: Demand fair; trend steady; supply adequate; $43.

Louisville: Demand slow; trend steady; supply good; $55.45, sacked.

COTTONSEED OIL MEAL

New Orleans: Demand slow; supply ample; trend steady; $84.50@85 bulk, $87.50@88 sacked.

Buffalo: Demand and supply fair; trend steady to higher; $77.70, sacked, Boston.

St. Louis: Demand fair; trend firm; supply adequate; solvent $60.

Chicago: Demand better; trend higher; supply fair; Memphis basis: hydraulic $58.50, solvent $55.

Memphis: Demand and supply good; trend steady; prime 41% protein, old process $55; new process, 41% solvent $56.

Omaha: Demand slow; trend strong; supply tight; 41% solvent $62.70, delivered Omaha.

Cincinnati: Demand fair; trend steady; supply adequate; $62@63.

Louisville: Demand fair; trend strong; supply ample; old or new process $66.50, sacked.

Wichita: Demand good; supply sufficient; 41% old process, sacked $69.

Ogden: Supply good; 41% $70@72.

Ft. Worth: Demand excellent; offerings tight, especially on hulls; 41% old process $65, f.o.b. mills Ft. Worth; carlots, solvent 2% fat added $60@62, delivered Ft. Worth, March-April; pellets $2 additional, April delivery.

San Francisco: Demand good; supply tight; 41% $69, 44% $74.

Los Angeles: Demand limited; trend slightly weaker; supply more plentiful; $71@72.

Portland: Demand slow; supply ample; trend unchanged; $74.

Philadelphia: Demand dull; trend unsettled; supply fair; $69.

Denver: Demand good; trend steady; supply nil until April; 2% $63.40.

Boston: Demand fair; supply spotty; $73.70.

Kansas City: Demand good; trend stronger; supply scarce for immediate; 41% old process $57.50@58; 41% solvent process $56@56.50, Memphis.

CURACAO PHOSPHATE

New York: $48 sacked, $46 bulk, f.o.b. New Orleans, Jacksonville or Philadelphia.

D ACTIVATED PLANT STEROL (POWDERED)

Chicago: Demand fair; supply ample; 4,000,000 U.S.P. units per lb., 15¢ lb. in ton lots, less than ton lots 17¢ lb.; 12,000,000 units per lb., 5 tons to a carload 28¢ lb., ton lots and less 30¢ lb.

D ACTIVATED ANIMAL STEROL (POWDERED)

Cincinnati: Demand fair; trend steady; supply ample; 1,500 ICU 11@12¢ lb.; 3,000 ICU 10¢ lb., warehouse.

DEFLUORINATED PHOSPHATE

Coronet, Fla.: Minimum phosphorus 18%, minimum calcium 31%, maximum calcium 34%, maximum fluorine .18%; guaranteed uniform analysis; carload $66.25, sacked, 100-lb. multiwall bags, bulk $63.25; truckload $67, sacked, in 100-lb. multiwall bags, bulk $64, f.o.b. Coronet, Fla.

Tupelo, Miss.: Minimum phosphorus 14%, minimum calcium 28%, maximum fluorine .14% $57.07, f.o.b. Tupelo in 100-lb. multiwall bags, $54.07 bulk.

Wales, Tenn.: Minimum phosphorus 18%, minimum calcium 33%, maximum 36%, maximum fluorine .18% $71.80 (or $3.99 per unit of P), f.o.b. Wales in 100-lb. multiwall bags, $3 less in bulk.

Cincinnati: 18% phosphorus $81.02; 14% phosphorus $71.02, f.o.b. Cincinnati.

Houston: Minimum phosphorus 19%, minimum calcium 32%, maximum calcium 35%, maximum fluorine .19% $74.35 net ton, f.o.b. Houston, 100 lb. multiwall bags; $71.35, bulk.

DICALCIUM PHOSPHATE

Chicago: Bulk 18.5% phosphorus, carlots or trucks $83; 20,000 lb. or more $86 net ton in 100 lb. papers; less than 20,000 lb. $96, basis Chicago Heights, Ill., or Nashville, Tenn.; 21% phosphorus, carlots or trucks, bulk $94.65; 20,000 lb. or more, per net ton in 100 lb. papers, $97.65 and less than 20,000 lb., $107.65, basis Chicago Heights, Ill., or Nashville, Tenn.

Bonnie, Fla.: Minimum phosphorus 18½%, granular, $86 (or $4.65 unit of P), freight equalized from nearest producing point, carload basis; bulk carloads $3 less; in truck loads of less than 10 tons, $10 more. Western slope prices: for delivery at established railroad stations and by truck at regular feed mixing plants: California, Arizona, Nevada and Utah, $99.90; Washington, Oregon, Montana and Idaho, $107.15; bulk carloads $3 less; truck loads less than 10 tons, $10 more.

Columbia, Tenn.: Minimum phosphorus 18½%, minimum calcium 24% $86, f.o.b. Columbia, in 100 lb. multiwall bags; freight equalized with nearest producing point, carload basis; bulk $3 ton less.

Texas City, Texas: Minimum phosphorus 18.5%, minimum calcium 20%, maximum calcium 23%, maximum fluorine .12%; carload and truckload $80.50, sacked, in 100 lb. multiwall bags, bulk $77.50, f.o.b. Texas City.

Portland: Demand slow; supply ample; trend unchanged; $112.

Cincinnati: 18½% phosphorus $92.15, f.o.b. Cincinnati.

Denver: Demand fair; trend slow; supply ample; $95.80, f.o.b. Denver.

Trenton, Mich.: 18½% P $83, bulk, boxcar/hopper car; $86, bagged, in carloads or truck loads; $96, bagged, in less than carload lots; 21% P, $94.65, bulk, boxcar/hopper car; $97.64, bagged in carloads or truck loads; $107.65, bagged, less than carload; all prices f.o.b. Trenton, freight equalized with nearest producing point.

DISTILLERS DRIED GRAINS

Louisville: Demand fair; trend easy; supply good; bourbon grains: light $54@55, dark $55@56, solubles $77, all sacked.

Buffalo: Demand fair; trend lower; supply adequate; $56, Boston.

San Francisco: Demand fair; supply ample; solubles $79, sacked.

Philadelphia: Demand slow; supply light; $56.50.

Cincinnati: Demand fair; trend steady; supply adequate; by truck: dark $58, light $57.50.

Boston: Demand fair; supply adequate; $53.

DRIED BEET PULP

Ogden: Supply ample; $41@46.

San Francisco: Demand good; supply fair; $42.80.

Milwaukee: Demand fair; trend strong; supply limited; plain $50, molasses $51, all Chicago, 50 lb. paper.

Buffalo: Demand fair; trend steady to higher; supply limited; $55, sacked, Boston.

New Orleans: Demand fair; trend steady; supply adequate; $54@55, sacked.

Ft. Worth: Demand fair; supply sufficient; 50 lb. papers $54, 30 days' shipment, delivered Ft. Worth.

Los Angeles: Demand slow; trend unchanged; supply adequate; $47.40@48.50.

Portland: Demand good; supply ample; trend unchanged; $56.40.

Denver: Demand excellent; trend very strong; supply nil; $32.50, bulk, f.o.b. Colorado factories; $34.50, pellets, f.o.b. Colorado factories.

Boston: Demand improved; supply steady; $55, sacked.

DRIED BUTTERMILK

Milwaukee: Demand fair; trend firm; supply limited; $13.75 cwt.

Ogden: Supply ample; $17.25 cwt.

Buffalo: Demand good; trend steady; supply scarce; $13.75 cwt.

Chicago: Demand quiet; trend steady; supply fair; medium acid $11.75@12 cwt., sweet cream $11.75@12 cwt., both sacked.

New Orleans: Demand fair; trend steady; supply ample; $13@13.50 cwt.

San Francisco: Demand and supply fair; 12½¢ lb., sacked.

Louisville: Demand fair; trend steady; supply normal; $13@13.50 cwt., sacked.

Los Angeles: Demand slow; trend unchanged; supply adequate; 13½¢ lb., sacked.

Boston: Demand good; supply light; 14¢ lb.

DRIED CITRUS PULP

Buffalo: Demand and supply fair; trend steady to higher; $33, sacked, Florida points.

New Orleans: Demand fair; trend easy; supply normal; $32.50@35, f.o.b. Florida.

San Francisco: Demand and supply fair; meal $49, sacked.

Los Angeles: Demand slow; trend unchanged; supply adequate; orange pulp $40, lemon pulp $38.

Boston: Demand slow; supply ample; $51.50, sacked.

DRIED SKIM MILK

Portland: Demand slow; supply ample; trend unchanged; 13¢ lb.

Cincinnati: Demand fair; trend steady; supply adequate; 13@14¢ lb., sacked.

Ogden: Supply average; $15.15, 100 lb. drum.

Chicago: Demand and supply fair; trend steady; $11.75@12 cwt., sacked.

Buffalo: Demand fair; trend steady; supply ample; spray $13.85 cwt.

New Orleans: Demand slow; supply ample; trend unchanged; $13.50@14.25 cwt., sacked.

Louisville: Demand fair; trend steady; supply ample; $13@13.50 cwt., sacked.

Milwaukee: Demand fair; trend firm; supply limited; $14 cwt.

San Francisco: Demand and supply fair; 14½¢ lb., sacked.

Los Angeles: Demand fair; trend unchanged; supply adequate; 15¢ lb., less than ton lots; 14½¢ lb., ton lots, both sacked.

Philadelphia: Demand slow; supply light; $12.50 cwt.

Boston: Demand good; supply fair; 13¢ lb.

Minneapolis: Demand remains only fair, and supplies still light; no price change from last week; $13.50 cwt., sacked.

DRIED WHEY

Philadelphia: Demand slow; supply light; $6.50 cwt.

Wichita: Demand light; supply ample; $6.50 cwt., sacked.

Louisville: Demand slow; trend steady; supply ample; $6.50 cwt., sacked.

Cincinnati: Demand fair; trend steady; supply adequate; $6 cwt., sacked.

Ft. Worth: Demand fair; supply adequate; carlots, standard $6, sacked, delivered Ft. Worth; $6.25 ton lots, f.o.b. warehouse Ft. Worth.

Ogden: Supply ample; $7, 100 lb. bag, sacked.

San Francisco: Demand steady; supply good; $5.75 cwt., sacked.

Los Angeles: Demand slow; trend unchanged; supply adequate; $5.93 cwt., carloads; $6.23 cwt., l.c.l., both sacked.

Denver: Demand fair; trend steady; supply ample; $6.50 cwt.

Chicago: Demand slow; trend firm; supply fair; $5.75@6 cwt., sacked.

New Orleans: Demand fair; trend easy; supply ample; $6@6.50 cwt., sacked.

Portland: Demand slow; supply ample; trend unchanged; $5 cwt.

Boston: Demand and supply steady; 5½¢ lb.

Kansas City: Demand fair; trend steady; supply adequate; regular or partially delactosed $5.50 cwt., producers' points.

Minneapolis: Supply adequate; demand fair; price steady at $5.35@5.45.

FEATHER MEAL (HYDROLYZED)

Ft. Worth: Demand good; supply extremely scarce; 85%-87% protein $80, sacked, f.o.b. trucks, north Texas plants.

Los Angeles: Demand slow; trend unchanged; supply adequate; $1 a unit of protein, sacked.

FISH MEAL

Omaha: Demand good; trend good; supply plentiful; 60% menhaden $120, f.o.b. Omaha.

Cincinnati: Demand fair; trend steady; supply adequate; $145.

Louisville: Demand slow; trend steady; supply light; $145, sacked.

Ft. Worth: Demand good; supply sufficient; sacked: 65% protein, Peruvian $105; 60% protein menhaden $103.50, delivered Ft. Worth.

Milwaukee: Demand and supply fair; trend unchanged; 60% $140, sacked, Chicago.

Ogden: Supply ample; $1.70 a unit, f.o.b. Coast; 65% $115@117.

San Francisco: Demand slow; supply ample; $1.65 a unit protein, sacked.

Los Angeles: Demand steadier; trend unchanged; supply not too plentiful; local production, 60% protein $1.60 a unit, sacked.

Portland: Demand fair; supply ample; trend unchanged; $1.60 a unit.

Buffalo: Demand just fair; trend steady; supply ample; 60% protein menhaden $120 bulk, $125 sacked.

New York: Demand good; trend stronger; supply satisfactory; 60% menhaden meal $105, sacked, f.o.b. shipping points.

New Orleans: Demand dull; trend easy; supply ample; menhaden, 60% $105@110, sacked, f.o.b. Gulf; scrap $101@106, sacked, f.o.b. Gulf.

Chicago: Demand slow; trend firm; supply liberal; eastern menhaden, meal $101 @105, scrap $96@101; Gulf menhaden, meal $101@105, scrap $96@101; Canadian herring, meal $1.60@1.75 a unit of protein.

Denver: Demand fair; trend steady; supply ample; $1.75 a unit protein, f.o.b. West Coast.

Boston: Demand fair; supply ample; $117, sacked.

Minneapolis: Fish meal market generally $3@5 ton stronger than last week; demand gaining, and supplies a bit tighter; March 17 quotes: Gulf menhaden $135@137, sacked, truck lots; 76% herring $1.75 a unit protein, f.o.b. West Coast; 60% blended $131 @135, sacked, delivered, Minneapolis.

HAY

Philadelphia: Demand slow; supply light; $24@25.

Denver: Demand very good; trend good; supply fair; $32, new hay, first cutting; $33@34, new hay, third cutting alfalfa baled.

Wichita: Demand good; supply insufficient; prairie $23@25, alfalfa $32@34, baled.

Louisville: Demand better; trend steady; supply good; No. 1 hay, any variety $30@ 35, No. 2 $28@30; straw $18@20.

Cincinnati: Demand good; trend higher; supply short; No. 1 timothy $26; No. 1 red clover $30; alfalfa clover mixed $32; alfalfa, second cutting $45; wheat or oat straw $23.

Los Angeles: Weaker trend with ample supplies; U.S. No. 1 $40@41; U.S. No. 2 leafy $38@39; U.S. No. 2 green $38@40; U.S. No. 2 $36@37.

Ogden: Supply normal; $25 in the barn.

Portland: Demand slow; supply ample; trend unchanged; $37.

Ft. Worth: Demand greatly increased; offerings extremely light and insufficient for needs; carlots, baled, No. 1 alfalfa $50 @52, No. 2 $48@50; No. 2 prairie $32@34; Johnson grass $30@32, delivered Texas common points, all prices nominal.

HOMINY FEED

Kansas City: Demand fair; trend steady to strong; supply limited; white or yellow $34.50@35.

Memphis: Demand poor; trend steady to higher; supply ample; white $42, yellow $42.

New Orleans: Demand fair; trend easy; supply ample; $47@48, sacked.

Milwaukee: Demand good; trend firm; supply fair; $46 sacked, $42 bulk, Chicago.

LINSEED OIL MEAL

Cincinnati: Demand poor; trend steady; supply adequate; new process $56; old process $67, Minneapolis.

Omaha: Demand fair; trend easy; supply ample; 34% solvent $59.50; 32% old process $72.80, Omaha basis.

Denver: Demand and supply fair; trend steady; $70.30, Denver.

Milwaukee: Demand fair; trend steady; supply ample; old process $76, new process $66.50, both Chicago.

Ft. Worth: Demand slow; supply sufficient; 34% protein, solvent $72, rail, March.

San Francisco: Demand fair; supply ample; $76.

Los Angeles: Demand slow; trend weaker; supply limited; local production, 31% protein $76.

Portland: Demand slow; trend lower; supply ample; $82.

Chicago: Demand slow; trend easier; supply fair; Minneapolis basis: solvent $54, expeller $66, nominal.

New Orleans: Demand slow; trend easy; supply ample; $81.50@82 bulk, $84.50@85 sacked.

Boston: Demand fair; supply light; $84.

Kansas City: Demand fair; trend steady; supply adequate; solvent process $53.50@54; old process $66.50@67, Minneapolis.

Minneapolis: Slow demand continues, and market remains on weak side; 34% new process steady to $1 lower at $54.50; old process off 50¢@$1 at $65.50@66.

MEAT AND BONE MEAL

Kansas City: Demand good; trend strong; supply tight; 50% $77.50@78.50.

St. Paul: Demand remains fairly strong, but higher cost of raw materials primarily responsible for continuation of price gains; price up $3@4 from last week to $80@85.

St. Louis: Demand good; trend steady; supply adequate; $81.

New York: Demand fair; trend steady; supply good; 50% $70, sacked; 55% $77, sacked, New York.

Buffalo: Demand good; trend stronger; supply ample; 50% meat scraps $77.50 bulk, $82.50 sacked.

Chicago: Demand quiet; trend firm; supply fair; 50% protein, 100 lb. sacks $80.

New Orleans: Demand slow; trend easy; supply ample; $85@90, sacked.

Omaha: Demand and supply good; trend strong; $80.

Cincinnati: Demand good; trend strong; supply fair; 50% meat and bone scraps $81, Cincinnati.

San Francisco: Demand fair; supply ample; $1.45 a unit protein.

Los Angeles: Demand slow; trend unchanged; supply ample; 50% protein $1.65 a unit.

Portland: Demand fair; supply ample; trend unchanged; $1.39 a unit.

Denver: Demand good; trend strong; supply ample; 50% $72.50, sacked, truck lots; $70, bulk.

MILLFEED

Minneapolis: Market leaped to highest level of crop year this week; short supply and heavy demand brought about by snowy and cold weather, especially in the South, said to be major influences; middlings up $2.50 to $44.50, sacked; bran also up $2.50 to $44.50; red dog up $1@4 to $45.

Kansas City: Demand good; trend strong; supply nearby tight; sacked, bran $42.25@ 42.75, shorts $41.75@42.25; bulk, bran $38.50 @39, shorts $41@41.50, middlings $40.50 @41.

Wichita: Demand good; supply about offsets demand; basis Kansas City: bran $40.25 @40.75, shorts $39.75@40.25, sacked.

Ft. Worth: Demand excellent; offerings limited for immediate delivery; bran $43.50, burlaps $51; gray shorts $50, burlaps $51; bulk middlings $49.50, delivered Texas common points.

Chicago: Bulk, carlots, standard bran $41; standard midds. $44.50@45; red dog $46.

St. Louis: Demand good; trend firm; supply adequate; sacked, bran $43, shorts $47.50; bulk, bran $43.50, middlings $45.50.

Cincinnati: Demand fair; trend steady; supply adequate; bran $46@48, middlings $47@49.

Omaha: Demand good; trend strong; supply tight; sacked bran $42; sacked gray shorts $41.50; bulk standard midds. $40, all Omaha basis.

Boston: Demand spotty; supply fair; bran $53, middlings $54.

Buffalo: Millfeeds rose and prices held on demand from large and small mixers, plus very low flour mill running time. Large mixers did not get up to 100% of their normal millfeed tonnage because they are using substitutes. The sacked differential on bran and middlings held steady at $4.50. Bulk and sacked bran, middlings and red dog advanced $1@2. Quotations March 19: bulk bran $45@46.50, sacked $49.50@51; bulk middlings $46@47.50, sacked $50.50@ 53; bulk red dog $47@48.50, sacked $51.50 @53.

Philadelphia: Demand and supply fair; trend unsettled; bran $51.50, standard midds. $52.50, red dog $54.

New Orleans: Demand good; trend easy; supply ample; sacked, bran $50.50@51.25, shorts $50@50.75; bulk, bran $46.50@47.25, shorts $47@47.75 middlings $47@47.75.

Memphis: Demand fair; trend steady to higher; supply tight; wheat bran $45.20, gray shorts $47.20, standard midds. $46.70.

Louisville: Demand fair; trend strong; supply good; bran $51.60, mixed feed $53.10, shorts $53.10, all sacked.

Denver: Demand steady to strong; trend steady to strong; supply limited; shorts $43.25, bran $43.75, mill run $43.50.

Ogden: Supply ample; to Utah and Idaho: red bran and mill run $34, middlings $38; to Denver: red bran and mill run $41, middlings $46; to California: red bran and mill run $41.50, middlings $46.50, f.o.b. San Francisco and Los Angeles.

Portland: Demand slow; trend higher; supply limited; $36.

San Francisco: Demand slow; supply ample; millfeed $44.25; red bran $49.25.

Los Angeles: Standard mill run $46.50@ 47.50, better demand, firmer trend, tight supplies; red bran $56.50@58.50, slow demand, much firmer trend, tight supplies.

OAT PRODUCTS

Chicago: Demand and supply fair; trend steady to easier; reground oat feed $16; No. 1 fine ground feeding oatmeal $67@ 68; feeding rolled oats $77@78.

Memphis: Demand fair; trend steady to higher; supply tight; 3½% protein, reground oat feed $26.75.

Cincinnati: Demand fair; trend steady; supply adequate; pulverized oats $47.

Ft. Worth: Demand slow; supply sufficient; oat millfeed $50.20, reground $30.20, March, sacked, new jutes.

Minneapolis: One of few commodities remaining unchanged in price this week; feeding rolled $81; feeding oatmeal $68; pulverized $46.50; reground oat feed $26; crimped $81; all sacked prices.

Los Angeles: Demand slow; trend easier; supply limited; local production, pulverized $68, sacked.

Portland: Demand slow; supply ample; trend unchanged; rolled $80, ground $62, cleaned $60.

Boston: Demand and supply steady; white pulverized $56.50, sacked; reground oat feed $33, sacked.

OYSTER SHELL

New Orleans: Demand and supply good; trend steady; $24@24.50, papers.

POULTRY BY-PRODUCTS

Ft. Worth: Demand good; supply scarce; 55% protein $90, sacked, f.o.b. north Texas plants.

Los Angeles: Demand very good; trend steady; supply tight; $1.45 a unit protein, sacked.

Boston: Demand fair; supply spotty; $89.

SCREENINGS

Cincinnati: Demand good; trend steady; supply adequate; $25@25.50, delivered, Cincinnati.

Buffalo: Demand fair; trend higher; supply poor; ground, sacked $41.25, New York; unground, bulk $36, New York.

Chicago: Demand and supply fair; trend firm; ground grain screenings $32; Canadian $31.50.

Minneapolis: Not much change in very tight supply situation; Canadian up $1 from last week to $28, Duluth; demand only fair at that price level; domestic ranges unchanged, lights $13@23, mediums $24@25, heavies $34@43; flax screenings, basis 15%, $45, Minneapolis.

Ft. Worth: Demand good; supply limited; ground mixed grain $28.50@29.50.

SOFT PHOSPHATE WITH COLLOIDAL CLAY

(Sacked)

Atlanta: $20.40@20.67.
Buffalo: $25.21@25.45.
Chicago: $24.77@24.90.
Cincinnati: $23.47@23.48.
Des Moines: $25.23@25.35.
Kansas City: $24.85@25.
Memphis: $22.20@22.47.
Minneapolis: $25.92@26.06.
Philadelphia: $24.22@24.96.
St. Louis: $24.14@24.27.

SOYBEAN OIL MEAL

Los Angeles: Demand slightly improved; trend firmer; lighter offerings; $76.90@77.90.

Portland: Demand steady; supply ample; trend unchanged; $49, f.o.b. Decatur.

St. Louis: Demand fair; trend firm; supply ample; 44% $59.

New Orleans: Demand slow; trend easy; supply ample; $70.50@72 bulk, $74@76 sacked.

Minneapolis: More buying interest; supply adequate; processing plants reported to be holding production down only slightly; 44% up $1.50@2 from last week to $49.50@50, Decatur.

Chicago: Decatur basis, carlots, 44% protein, unrestricted billing $56@57 and eastern trunk line $52@53; 50% protein, unrestricted billing $62.50@63 and eastern trunk line $57@58.

Philadelphia: Demand and supply fair; trend unsettled; 44% $52.50, Decatur.

Ft. Worth: Demand fair; supply sufficient; 44% $65.80 March, $65.60 April, $68.30 May-September; 50% protein $72.60 March-June, $75.30 July-September.

San Francisco: Demand fair; supply ample; $72.40.

Omaha: Demand fair; trend steady; supply ample; 44% $58.60, delivered Omaha.

Kansas City: Demand improved; trend steady to stronger; supply ample; 44% solvent process $54@54.50, Decatur.

Cincinnati: Demand poor; trend steady; supply adequate; $54@56, Decatur.

Memphis: Demand fair; trend steady; supply ample; prime 44% solvent $54.50, f.o.b. Memphis.

Milwaukee: Demand and supply fair; trend fair; $55, Decatur.

Denver: Demand fair; trend steady; supply ample; $60, Denver.

Boston: Demand good; supply adequate; 44% $51.50; 50% $55.50; both f.o.b. Decatur.

TANKAGE

Cincinnati: Demand fair; trend steady; supply ample; 60% digester $81, Cincinnati.

Omaha: Demand and supply good; trend strong; $80.

Kansas City: Demand good; trend strong; supply tight; 60% digester $77.50@78.50.

St. Louis: Demand good; trend steady; supply adequate; $82.

Chicago: Demand and supply fair; trend steady; 60% protein, 100 lb. sacks $82.50.

New Orleans: Demand dull; supply good; trend steady; 60% $80.50@82 bulk, $83@ 83.50 sacked.

St. Paul: Feed demand up somewhat; supply ample; raw material price gaining; market up $2 from last week to $80@83.

Ft. Worth: Demand fair; supply moderate; 60% digester $82, Ft. Worth.

New York Meat Tag Bill Killed

CHICAGO—The New York Assembly Agriculture Committee has killed a bill proposing that poultry and red meat be required to bear a tag showing the kind and amount of additives used in producing the animals or birds.

The assembly action on the proposed New York legislation was noted this week in an American Feed Manufacturers Assn. bulletin. The AFMA, when the proposal was introduced, had called for vigorous industry opposition. (Feedstuffs, Feb. 20.)

A similar bill was introduced in the New York Senate, but it is assumed that the assembly committee action will preclude any favorable action in the Senate.

Many AFMA members contacted New York legislators concerning the "far fetched" meat labeling bills.

3 More Counties Emergency Areas

WASHINGTON—Three more counties in Michigan—Gogebic, Luce and Mackinac—have been designated as emergency areas where farmers and dairymen can buy government-owned feed grain at current support prices, Ezra Taft Benson, secretary of agriculture, has announced.

Previously, eight counties in Michigan and 13 in South Dakota had been designated as emergency feed areas under this program.

During the past year, unfavorable weather, insects and plant diseases reduced the quantity and quality of 1959 feed production in Michigan, making these counties eligible for assistance under this act. Commodity Credit Corp.-owned corn and barley will be made available in the Michigan counties.

Feed Mill Fire

ST. ALBANS, VT. — Early detection of a smouldering fire at the St. Albans Grain Co. prevented a serious blaze, it was reported by James Cioffi, fire chief.

Firemen brought lines to the third floor level of a grain storage shed to put out the flames in a small quantity of grain. An employee reportedly attempted to douse the fire with an extinguisher before firemen arrived, but was unable to do so.

Chief Cioffi said the fire started when a roller shaft broke, causing grain to pile up and bind the conveyor belt. The belt overheated and sparks ignited the grain.

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STORAGE RATE

(Continued from page 1)

USDA for the proposed reduction, industry spokesmen said in a formal statement that "certain references to annual storage rates have resulted in misleading publicity about the profits of the warehousemen. Statements have been expressed as percentage profits over per bushel costs. Such percentages are meaningless and may have no relationship to annual net earnings expressed as a percentage of capital invested.

"We are fully agreed that the proposal will not be acceptable to the industry."

The next session is slated for March 30—the so-called "town hall-type" of meeting at the Continental Hotel in Kansas City, where all persons are allowed to attend.

While the drastic reductions in most storage rates and handling charges feature the USDA proposals, another aspect of the proposed changes puts all storage charges on a uniform basis nationally, whereas, in the past, there have been regional variations. This condition will, it is said, have its heaviest impact on the Southwest—particularly Texas and Oklahoma—which may arouse some heated political reactions from politicians of those states and the lending agencies in those communities.

$125 Million Loss

It has been estimated that if these proposed rates go into effect, it will slice off the warehouse industry nearly $125 million in storage earnings alone—probably more when the reduction in handling charges are added.

The biggest storage rate reductions were made in flaxseed and grain sorghums of more than 4¢ per bushel, whereas the national average rate reduction for all other grains except oats was slightly more than 3¢ per bushel. But, as noted above, with the area differentials eliminated in some regions, the reductions (as in the case of wheat and corn) are higher.

These proposals for reduced storage rates and handling charges follow earlier statements by USDA officials that a rate reduction was a certainty.

However, the extent of the reduction was a surprise to many. According to USDA officials, those reductions were indicated by its analysis of the replies to the USDA storage cost data questionnaire which was undertaken by the Commodity Stabilization Service earlier at country, sub-terminal and terminal warehouses—a sample of a selected list more than 500 warehouse units.

Sen. Stuart Symington (D., Mo.), who has been heading a special Senate Agriculture Investigatory Committee delving into the operations of the Commodity Credit Corporation, expressed satisfaction with the USDA announcement.

Symington Statement

In part, Sen. Symington said, "The department had never before known the cost of storing government grain in commercial warehouses, until it was questioned by Congress recently.

"Despite the fact that almost $2½ billion has been spent for commodity storage in the last 7½ years, this is the first time the Department of Agriculture has been able to negotiate a UGSA with knowledge of what it costs the commercial warehousemen to store government grain."

What Sen. Symington may have overlooked is that at no time under preceding administrations has the USDA staff ever had anything other than gossamer ideas of storage costs, and those reflected trading between the warehousemen and the USDA representatives.

However, Ezra Benson, secretary of agriculture, must be attributed with casting searching congressional attention on the warehousing industry. Sec. Benson, in attacking the cost of the farm program, has been preaching that the cost of holding surpluses, produced under what he charged to be extravagantly high price supports, was running more than a billion dollars a year.

These repeated statements on the disbursement of these huge sums of money pricked the political hides of his Democratic opponents who bore in to find out how Sec. Benson assessed these costs and what his staff knew about costs when they negotiated storage agreements with the trade.

Succession of Increases

There has been a long succession of storage rate increases since the original UGSA was adopted. In the past, these increases, in most part, appeared reasonable since they obviously reflected inflated values which have occurred since 1938.

It is likely that regional area pressures may compel some still further trading or adjustment on the new proposal.

But, in this connection, it may be somewhat significant to study another item in Sen. Symington's statement wherein he said, "No one can predict the final result of the department's current renegotiation with the grain trade. However, in light of the facts presented before our Senate Agriculture Investigating Subcommittee, this long-delayed action of the department of agriculture could well result in an annual saving of between $75-100 million to the American taxpayers."

One may read into that last paragraph that Sen. Symington will not view with passive complacency any subsequent decision on the part of the USDA officials to make modifications in the proposed rate structure. But there may be some reason to think that the increased responsibilities which USDA will ask of the warehousemen, plus the ruckus which may arise from the elimination of area differential in a uniform storage, may permit some modifications which would not necessarily provoke the Missouri senator's wrath.

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HALES & HUNTER

(Continued from page 1)

poultry feeds and Pioneer livestock feeds. It is among the pioneers in commercial feed manufacture tracing its history back to 1902.

The company started milling feeds in the Chicago area. Today there are milling facilities in seven states. The Chicago area mill, located in suburban Riverdale, remains the company's major manufacturing facility.

The old board of directors included William M. Hales, William H. Garvey, Jr., Marion J. Hales and Edward E. Woolman. The five additional members are Dr. Louis B. Howard, dean of the University of Illinois College of Agriculture; Dr. Earl M. Hughes, an agricultural marketing and farm management specialist with experience in university work and the U.S. Department of Agriculture; L. B. Hunter, vice president, Inland Steel Co.; Harold J. Nutting, retired executive vice president of Marshall Field & Co. and current chairman of the board of Overseas Industries, Inc., and Joseph D. Stockton, vice president and treasurer of the Illinois Bell Telephone Co.

OPTIMISM

(Continued from page 1)

formula feed business along, too. Upward adjustments in most formula feed prices were noted this week.

Movement of farm products to markets has been curtailed by snowbound and icy roads, thus cutting down supplies and lifting prices. On top of this, processors have been more active in buying.

At mid-week, livestock prices advanced as bad weather again disrupted marketings. Cattle, lambs and hogs were at their highest levels in six months or more. Egg prices advanced moderately now and then during the week, too, primarily because severe storms have cut egg production. At some markets cash egg prices hit a four-month high early this week, then dropped off a bit.

In many areas, especially in the South, unseasonable snowy and cold weather has created feed shortages, and protein supplements are being heavily fed to maintain livestock condition. Demand for formula feeds has risen sharply in many regions because of roughage shortages and useless pasture.

The upturn in formula feed sales is reported not sharp, but it is encouraging. Sales of most feeds this week were well ahead of last week in some regions, but in some cases still not ahead of the corresponding week a year ago. But considering that the climb from the season's low level of volume to the peak has been tougher this year than it was last year, any substantial gain in business is quite significant.

Although higher prices for farm products are quite evident, there is still a long-run money and credit problem for the feed industry. "If farmers only had some money we could sell some feed," said an official of a feed firm. It seemed apparent that a good share of the producers won't be able to pay for the feed they buy until fall when they market their hogs and harvest their crops.

Weather has had direct effects on feed manufacturers in some regions. In the South where feed men are involved directly in broiler production, they have sustained heavy losses. And in other areas, where snow has been particularly heavy, feed mills have had to shut down for short periods.

ALLIED MILLS

(Continued from page 1)

in Texas with the purchase of Universal Mills late in 1958. The Fort Worth plant was completely modernized in 1959, and Mr. Lenz pointed out that the company was in good position to provide excellent service on the newly acquired lines of feed.

According to statements by James A. Fant, president of the Sherman firm, the Fant feed mill will be dismantled, and the company will concentrate on the production of flour and refrigerated dough products. J. W. Banister, who has been in charge of the feed division, will remain with Fant as a vice president.

STORM

(Continued from page 1)

lems, in addition to the losses sustained through deaths of birds.

In other southern states, storm-caused feed shortages, have introduced heavy feeding of protein supplements to maintain livestock condition. Producers have had a hard time obtaining adequate manufactured feed and grain because of icy roads. Demand for roughage and formula feed has increased considerably because of shortages created by storms.

Roundup of Reports

A roundup of some of many reports follows:

GEORGIA—After several blizzard-like snowstorms and an ice barrage—the like of which hasn't been seen in the broiler producing areas of north Georgia in more than a quarter of a century—the big question among feed and poultrymen was: Just how much damage has been done and how is it going to affect the broiler industry?

Thousands of birds died of starvation, suffocation and thirst. Staggering financial losses were estimated at from $10 million to $40 million, with little hope that any federal aid, if provided, would actually ease the situation.

The snow storms extended into every southern state where broilers are produced. North Carolina was hard hit, but it was believed that producers in that state did not suffer as greatly as those in north Georgia because North Carolina growers are better prepared for rough winters.

One thing is certain, said Al Gibson, secretary, Georgia Poultry Federation, and that is a severe shortage of birds for Georgia markets for the next several weeks. What effect southeastern storms will have on the national market, he said, remains to be seen.

Mr. Gibson noted that, normally, broiler prices go up when supplies are short. "If we can get the retail price raised even slightly, it will help offset some of the storm losses," he said.

Many Problems

Another question was whether exposure of the birds to the freezing weather would have an effect on the rate of condemnation at the markets. Respiratory infections, it was pointed out, darken the white meat.

Still another problem was what to do with young fowl being hatched. Since hundreds of chicken houses were destroyed or damaged, there were difficulties in finding spots for them.

Poultrymen say that unless financial assistance comes, a lot of people are going to face financial ruin.

Many of the demolished chicken houses were already under heavy mortgage. And getting additional financing from banks, insurance companies, and other private sources may be difficult.

Relief Questionable

For awhile it was believed the Farmers Home Administration might

come to the financial assistance of producers. There are complications in regulations, however.

S. L. Vanlandingham, associate state director of FHA in Atlanta, said a survey would be made of the 21 counties hardest hit in Georgia to determine the extent of damage. The information in the survey will then be forwarded to the secretary of agriculture. He may declare some or all of the area "disaster areas."

Eligible producers, if that happens, may apply for emergency production loans at 3% over a 10 to 15-year period.

There was speculation, however, as to how many chicken producers are eligible for these loans because many of them have an inadequate credit rating.

John Bradley, state administrative officer for the Agricultural Stabilization Committee, pointed out another handicap for poultry growers. He said the USDA assistance probably would be "token" federal aid to help farmers buy feed for cattle, sheep and goats, but not for chickens.

As new snow and hardships were reported, the National Guard, which had been hauling feed to poultry producers, announced that it would discontinue this service because of the need of the vehicles for "more humanitarian services."

Damage

The Agricultural Extension Service in Athens made a roundup of damages a week ago and came up with some figures:

Dawson County, with 75 chicken houses collapsed and considerable loss of chickens, $150,000; Hall County, with 45 houses collapsed and heavy loss of chickens, $200,000; Lumpkin County, with 208 houses collapsed and heavy chicken loss, $500,000 or higher; White County, with 60 houses collapsed and extensive chicken loss, $200,000. Varied losses occurred in other counties.

It was reported that few of the growers were protected by insurance against the storms which hit them. They had insurance against fires and tornadoes, an industry source said, but not against snow and ice.

DELMARVA — Delmarva broiler growers found that snow brings problems to all phases of their industry, including provisions of feed and fuel, movement of birds, the rescheduling of slaughter at processing plants and price fluctuations.

Many chicken-growing spreads were isolated by blizzards, and for a week heavy trucks and bulldozers were busy trying to get the broiler industry back on its feet.

Movement of a couple of million birds to market each week had just gotten back to normal when more snow fell.

OTHER AREAS—Other southern and eastern areas also were hard hit by the storm. This included some of the major poultry areas, plus other sections.

For example, in Kentucky, feed men indicated this week that with three weeks of snow and ice and up to 40 in. of snow in western Kentucky, there was increased demand for hay and stock feeds, although it was difficult to ship on icy roads. Another example was Louisiana, where winter grass was at a minimum because of icy conditions in some areas. In Mississippi, a growing shortage of stored feeds was causing anxiety among cattlemen.

Distribution of feed also was hurt in many areas by the widespread storms, and feed shortages were becoming serious. In the Ohio Valley, for example, snowbound highways had to be reopened before feed firms could resume normal delivery schedules.

TO ADD FEED FACILITIES

MANDAN, N.D.—Plans to add feed processing facilities to Occident Elevator's new elevator and farm store at Mott have been announced by Vern Baszler, manager.

Sows Farrowing, Selected Corn Belt States

State	December through May* Average 1949-58	December through May* 1959	December through May* 1960†	1960 as % of 1959	June through August Average 1949-58	June through August 1959	June through August 1960†	1960 as % of 1959
	1,000 head			%	1,000 head			%
Ohio	385	368	342	93	156	178	175	98
Indiana	577	580	522	90	318	299	290	97
Illinois	933	974	867	89	310	447	411	92
Wisconsin	320	319	271	85	101	128	126	98
Minnesota	430	608	517	85	173	237	225	95
Iowa	1,877	1,776	1,563	88	515	659	645	98
Missouri	496	547	527	93	196	263	250	95
South Dakota	315	321	231	72	39	57	55	97
Nebraska	440	414	331	80	73	98	96	98
Kansas	148	155	126	81	41	53	52	98
Total 10 states	6,120	6,082	5,297	87	1,922	2,419	2,324	96

*December preceding year.
†Number indicated by breeding intentions reports.
‡Sum of December through February farrowings and March through May intentions to farrow.

FARROWINGS

(Continued from page 1)

Sows farrowing in 10 Corn Belt states during the December-February quarter were off 19% from a year earlier as farmers reacted to low hog prices. March-May intended farrowings are down less, but there still is an indication of a 10% reduction, the special Corn Belt report shows.

However, data on June-August intentions in the major swine producing area of the Corn Belt show a reduction of only 4% in sows intended to farrow. Also mentioned was the fact that the number of hogs and pigs on farms between 3 and 6 months of age on March 1 was 99% of last year.

The report confirms predictions last year that the upturn in swine production was peaking and that the 1960 late marketing period would be profitable and also make for a brighter political tone for the administration among corn-hog farm voters.

May Expand Operations

Meanwhile, it appears that farmers will be encouraged to expand hog operations. The swine market will firm into better price ground, and at the same time there are continuing heavy supplies of feed grains plus adequate supplies of vegetable protein meals, all selling at attractive prices.

Obviously, this condition could be materially modified if there were some major disaster to the feed grain and soybean crops this year, but there is an adequate supply of grain on hand to support bigger hog production later and an extended expansion early in 1961.

The number of sows farrowed and intended to farrow in the spring of 1960 is now estimated at 5,297,000 head for the 10 Corn Belt states (Ohio, Indiana, Illinois, Wisconsin, Minnesota, Iowa, Missouri, South Dakota, Nebraska and Kansas). Farrowings in all 10 states are down this spring from a year earlier.

The March 1 survey indicates a decrease of less than 1% (23,000 head) from the spring farrowing intentions reported for these states as of Dec. 1, 1959.

Sows farrowed in the 10 states during December, January and February totaled 1,746,000 head, 19% less than during the same period a year earlier.

Sows bred and intended for farrowing in March, April and May this year in the 10 states total 3,551,000 head, 10% less than a year earlier. This is 1% or 51,000 head more than the farrowing intentions reported for these states in December.

Breeding Intentions

Reported breeding intentions indicate 2,324,000 sows to farrow during the summer quarter (June through August) for the 10 states. This is a decrease of 4% or 95,000 sows from the 2,419,000 that farrowed during this same period a year earlier but 21% more than average. All 10 states indicate decreases in sow farrowings for this quarter.

The number of all hogs and pigs on farms on March 1, 1960, in the nine states with comparable data totaled 34,636,000 head. This was 9% less than the 37,887,000 head a year earlier. Hogs and pigs 6 months old and over totaled 11,908,000 head, 6% less than a year earlier.

The number of pigs under 6 months of age in the nine states was 10% less than on March 1, 1959. There is a decrease of 1% in the 3-6 month age group and a decrease of 18% in the number under 3 months of age.

The 10 states included in this report accounted for 73% of the 1959 U.S. pig crop.

AFMA

(Continued from page 1)

can be accomplished without endangering public health or otherwise interfering with the basic objectives of the food additives amendment" to the food and drug law.

The association called attention to the present "strict and narrow interpretation" of the Delaney clause and pointed out the urgency of proper and immediate action to correct the inequities.

"It is our opinion," said AFMA, "that congressmen who have had the opportunity to fully acquaint themselves with the facts about the so-called 'carcinogen' issue probably realize that the present approach leaves much to be desired. Future research and development of useful agricultural chemicals can receive a severe setback unless some modifications are made.

"Members of Congress who may be interested and willing to take the leadership on this 'critical' issue need the complete cooperation and support of all who appreciate the seriousness of this situation. In addition, all other members of Congress must be furnished unbiased scientific data and facts so they will be informed about the issue and its various ramifications."

The feed group cited the need for a coordinated educational campaign.

PROTEIN

(Continued from page 1)

Then, using calculations and data which he explained, the ration with or without amino acid supplementation can be devised.

The speaker proposed a new equation which can be used to reach required solutions. The information included a table showing calculations of requirements for methionine and lysine under different conditions of temperature, daily gain, body size, egg production and energy density of the ration. Dr. Combs went on to show how rations may be formulated.

More than 400 persons were registered on the first day for this annual conference, which is well known nationally for its emphasis on problems of poultry and dairy cattle nutrition.

Summaries of conference papers will be found on page 10.

FEED MILL SOLD

COLOGNE, MINN.—Clark Feed Mill, Hamburg, has been sold to Cologne (Minn.) Milling Co., Inc. Former owners and founders of the business were Henry and Frieda Clark.

Washington Co-op to Construct Feed Plant

OTHELLO, WASH. — Interstate Livestock Feeders Cooperative has certified an early spring construction date for a $175,000 feed processing plant to be constructed two miles north of here.

The plant is designed to manufacture both pelleted and mash feeds for bulk delivery to consumer feed locations. A number of Basin producers are charter members of the organization and are taking an active part in management, according to officials of the co-op.

The board of directors said that they anticipate constructing a feed lot on their unit after the feed mill is in production.

CHICK OUTPUT

(Continued from page 1)

000, compared with 304,195,000 during these months in 1959.

Hatchery reports on eggs in incubators March 1 indicate that the hatch of egg-type chicks during March will be much less than the hatch in March, 1959. Over the U.S., there was a decrease of 39% in number of chicken eggs in incubators March 1 as compared with the same time a year ago. By section, the percentage decreases were: West North Central 49; South Atlantic, 40; East North Central, 39; Mountain, 36; Middle Atlantic, 35; West South Central, 34; New England, 29; East South Central, 28, and Pacific, 17.

The hatch of broiler-type chicks in March is expected to be about the same or slightly smaller than in March last year.

Egg-Type Chicks Hatched by Commercial Hatcheries

State and division	(000's omitted) Jan. thru Feb. 1959*	Jan. thru Feb. 1960†	February 1959*	February 1960†
Maine	1,013	771	615	450
N. Hampshire	724	380	389	180
Vermont	76	64	48	34
Massachusetts	2,706	1,936	1,577	1,060
Rh. Island	104	72	58	14
Connecticut	2,190	1,468	1,164	788
N. E.	6,813	4,641	3,795	2,516
New York	3,319	2,530	1,757	1,450
New Jersey	5,450	2,500	3,350	1,600
Pennsylvania	7,093	5,189	4,369	2,874
M. A.	15,862	10,219	9,476	5,924
Ohio	4,160	2,600	2,710	1,800
Indiana	4,374	3,433	3,040	2,289
Illinois	4,828	3,810	3,557	2,914
Michigan	2,100	1,110	1,430	700
Wisconsin	1,535	860	1,113	685
E. N. C.	16,997	11,821	11,850	8,388
Minnesota	3,975	1,630	3,325	1,345
Iowa	5,580	2,150	4,845	1,730
Missouri	2,023	1,217	1,556	962
No. Dak.	82	26	75	26
So. Dak.	882	382	644	330
Nebraska	2,550	1,104	1,822	909
Kansas	1,168	830	930	600
W. N. C.	16,180	7,339	12,916	5,902
Delaware	**	**	**	**
Maryland	307	163	200	120
Virginia	1,363	892	920	373
W. Virginia	**	**	**	**
No. Carolina	2,168	1,008	1,486	709
So. Carolina	1,034	747	613	429
Georgia	4,260	1,905	2,293	888
Florida	2,381	2,054	1,282	1,060
S. A.	11,651	86,490	86,880	83,681
Kentucky	560	350	445	280
Tennessee	1,650	1,150	1,030	700
Alabama	1,712	835	915	472
Mississippi	1,143	809	650	241
E. S. C.	5,065	2,844	3,040	1,663
Arkansas	1,319	415	542	244
Louisiana	643	427	333	229
Oklahoma	990	630	648	330
Texas	8,729	3,690	3,240	2,162
W. S. C.	9,581	5,162	4,755	2,965
Montana & New Mexico**	188	134	167	116
Idaho	436	226	320	144
Wyoming & Arizona**	328	240	176	170
Colorado	479	336	339	226
Utah	548	426	356	246
Mountain	1,979	1,364	1,358	900
Washington	2,165	1,747	1,157	1,087
Oregon	926	801	587	504
California	11,028	9,587	5,681	4,886
Pacific	14,119	12,135	7,345	6,477
U. S.	97,237	62,023	61,423	38,336

*Revised.
†Preliminary.
**Combined to avoid disclosing individual operations. ‡South Atlantic total includes Delaware and West Virginia.

Chicks Placed in Principal Broiler Areas

(000's omitted)

Week ending	Maine	Conn.	Penn.	Ind.	Ill.	Mo.	Del.	Md.
January 9	1,144	429	946	809	130	745	1,940	2,428
January 16	1,081	424	663	722	100	848	2,049	2,230
January 23	1,082	357	656	665	94	885	1,884	2,245
January 30	1,104	427	666	749	117	715	1,980	2,300
February 6	1,063	422	805	787	120	822	1,925	2,261
February 13	1,091	484	805	776	106	694	1,986	2,184
February 20	1,079	415	784	802	131	742	1,987	2,024
February 27	1,059	513	657	712	152	726	1,947	2,216
March 5	1,190	466	709	770	112	727	1,934	2,158
March 12	1,172	445	723	780	105	664	1,880	2,261

Week ending	Va.	W. Va.	N.C.	S.C.	Ga.	Fla.	Ala.	Miss.
January 9	1,034	436	2,866	361	4,181	234	3,019	2,160
January 16	1,086	471	2,847	342	4,319	200	3,153	2,207
January 23	1,123	539	2,787	338	4,456	209	3,277	2,149
January 30	1,128	500	2,823	369	4,765	172	3,280	2,420
February 6	1,114	560	2,923	396	4,799	182	3,464	2,352
February 13	1,220	470	3,074	381	7,019	183	3,365	2,482
February 20	1,334	518	3,030	450	6,789	183	3,704	2,448
February 27	1,343	457	3,174	409	6,833	219	3,834	2,281
March 5	1,161	472	3,195	382	6,798	227	3,874	2,533
March 12	1,170	385	3,131	383	6,933	223	3,758	2,334

Week ending	Ark.	La.	Texas	Wash.	Oregon	Calif.	Total 22 areas 1960	Total 22 areas 1959
January 9	3,261	425	2,043	355	245	1,152	32,343	31,160
January 16	3,450	428	2,133	320	275	1,033	32,381	30,074
January 23	3,484	372	2,112	311	260	1,151	32,436	30,961
January 30	3,578	383	2,248	378	230	973	33,305	31,664
February 6	3,617	401	2,329	407	249	1,119	34,117	32,032
February 13	3,874	364	2,333	385	207	1,131	34,614	33,265
February 20	3,807	391	2,290	302	256	1,117	34,583	33,798
February 27	3,855	390	2,262	288	252	1,066	34,645	34,534
March 5	3,781	381	2,146	355	218	1,159	34,748	35,416
March 12	3,712	398	2,324	368	227	1,109	34,485	36,330

USDA

(Continued from page 6)

age payment would be 10.22¢ per bushel as compared with the current 11.68¢.

"For flax, no change is proposed in handling, but the present annual storage rate of 17.885¢ a bushel would be reduced to 13.505¢.

"For all other grains, the handling charge for truck deliveries, which now varies from 4.5¢ a bushel up to 8¢ a bushel, would become 5¢ per bushel in all regions. There would be no change in the present 2¼¢ handling charge for these grains when received by rail or water. The storage charge for these grains, which currently varies from 15.695¢ to 17.885¢ a bushel for a year, depending on the type of grain and location, would become 13.505¢ a bushel throughout the country for all grains other than oats.

"The downward adjustments in storage rates, and in some of the handling charges, are believed by department officials to be equitable and desirable in view of changes in the over-all storage situation. These include increased efficiencies in operation and some reduced costs in acquiring supplemental facilities. The very large current totals of grain stocks, and the resultant high levels of storage occupancy, are major factors in the situation.

"As a result of a comprehensive survey which was carried out by the department last fall, more accurate information also is now available on actual storage costs under present conditions. Results of this survey were announced by USDA on Jan. 21.

Further Discussion

"The proposed rates will be discussed further at a meeting, open to all interested persons, which has been scheduled for 9 a.m., March 30 at the Continental Hotel in Kansas City. At that time the proposals will be explained in detail, and there will be opportunity for presentation and justification of viewpoints regarding the proposed rates and other contract provisions.

"For several weeks the warehouse industry and department of agriculture representatives have also been discussing possible changes in some of the operating provisions of the storage agreement. In general, these would clarify storage responsibilities and increase the protection for the Commodity Credit Corp. The proposed storage rates were offered by the department on the assumption that warehousemen will agree to these changes in the storage agreement which provide additional safeguards to CCC. These proposed changes would be effective in mid-1960, as would the proposed rate revisions.

"With CCC surplus holdings of grain now past the 2 billion bushel figure, storage costs have become very heavy. The new rates now proposed would represent the first material reduction in the rate schedule since the UGSA first went into effect in 1940."

The accompanying schedules, subject to continuing negotiations, show the proposed rates, to be effective in mid-1960, and the rates now in effect under the Uniform Grain Storage Agreement.

PROPOSAL

(Continued from page 6)

of costly investments in grain elevators and equipment. We are aware that many warehouse firms have substantial, often very new, indebtedness.

"We are aware, too, that the department's rate schedule is a per diem rate and that the department's calculations, in annual terms, can be seriously misleading, because grain is often stored for very short periods—days, weeks or a few months. Actually, the agreement makes no reference to an 'annual rate' or 'annual storage payments,' or any guarantee with respect to occupancy or use for any period.

"If annual storage payments are mentioned in any context it should be said that there are 365 different possibilities depending upon whether the grain remains in storage for one day, or 365 days or some number of days in between.

"Certain references to annual storage rates or payments have resulted in misleading publicity about profits of warehousemen. Statements have been expressed as percentage profits over per-bushel costs. Such percentages are meaningless and may have no relationship to total annual net earnings expressed as a percentage of the capital invested.

"Of course, the industry has had no time to analyze the proposal or to study the rationale employed by the department in making it. But we are fully agreed that the proposal will not be acceptable to the industry.

"We appreciate that the negotiations will remain open and fluid, that the department, in fairness, has pledged that it will take fully into consideration abundant evidence that members of the industry will put before it. These will be in the form of objections to the proposal or outlines of counter proposals.

"Finally, we are deeply disturbed by the fact that the rates proposed are premature in some respects in that the terms of the contract are not settled. The rates, we respectfully submit, must reflect finally the responsibilities and risks assigned the contracting warehousemen. We conclude that the offer is not fairly compensatory for the services to be performed."

COLORADO

(Continued from page 6)

1958" will be the title of an address by Canton O'Donnell, Small Business Administration. Closing out the session will be a business meeting with the election of directors and other business. The directors will meet in the afternoon.

A buffet-smoker will be held Sunday with a ladies dinner and fashion show at the same time. A luncheon will be held Monday with Major General W. S. Stone, superintendent of the U.S. Air Force Academy giving a "Progress Report." Tuesday evening there will be a social hour to be followed by a dinner dance.

The fashion show will be sponsored by Montaldo's of Denver and the ladies dinner by the Evans Grain Co., Salina, Kansas. A $100 Gano Downs gift certificate door prize will be awarded at the convention.

INGREDIENTS

(Continued from page 6)

gether with feed market strength at central western, eastern and California markets provided support to the area's millfeed markets.

Since April is the month of peak millfeed prices, because that's when mill run is lowest and when the spring feeding season gets into full swing, one market observer was wondering if the millfeed price climb was arriving too early and too fast so that the market might taper off before the usual peak time. But he wondered, also, whether the millfeed market might keep right on climbing and still reach its peak in April.

Other Trends

Animal protein feeds moved higher with a fair demand shown for tankage, meat and bone meal and fish meal. Although demand was reported good for meat meal and tankage, prices also advanced because of higher prices for raw materials which were brought about by better pay to the producer for slaughter hogs.

The soybean meal market didn't make a big advance, but the ascension was significant, about $1.50@2 ton at some markets.

There have been conflicting reports of how extensive cutbacks in soybean processing have been in recent weeks. But it was reported this week that soybean meal supplies were adequate to ample, and it seemed most likely that feed demand improvement was primarily responsible for advances in the market, which has been rather draggy.

Further gains in the soybean meal market will encourage processing plants to return to regular production schedules, which have been curtailed by poor conversion ratios. However, it is the oil market which seems to have the most influence on this.

As noted in the accompanying table, the U.S. Department of Agriculture reports that during the week ended March 15 the index of weighted average feedstuffs prices gained 1.1. Also, it should be noted that since the data is for only up to March 15 some of the later developments in the ingredient market are not shown.

ENLARGEMENT PROGRAM

ALTA, IOWA—Quaker Oats Co. has completed an enlargement program here, including a 75,000 bu. storage building, a new 100,000 bu. grain elevator and four bulk feed storage tanks of 25 tons capacity each. John Miller is manager.

Panel Highlights Quad State Meeting

By PAUL ANDERSON
Feedstuffs Staff

SIOUX CITY, IOWA — One of the highlights of the Quad State Grain and Feed Convention March 13-14 was a panel discussion on feed and seed problems by the speakers on the program.

Pete Stallcop, executive secretary of the Northwest Country Elevator Assn., Minneapolis, moderated the panel composed of Oakley M. Ray, director of market research for the American Feed Manufacturers Assn., Chicago; Ron Kennedy, vice president of F. H. Peavey & Co., Minneapolis; Louis Roberts, associate director of the grain division, Commodity Stabilization Service, Washington, and A. Harris Kenyon, chief, Minneapolis district, Food and Drug Administration. The discussion was wide open and included a variety of topics.

Earlier, Mr. Stallcop had discussed the Uniform Grain Storage Agreement, Mr. Kennedy had talked on waterways and their effects, and Mr. Ray, Mr. Kenyon and Mr. Roberts also had given talks.

All the program talks and discussions were limited to Monday, with Sunday devoted to registration and social gatherings.

Feed men at the meeting expressed concern over farm conditions in the Dakotas and western Iowa as they affect the feed business. Some pointed out that drouth in the Dakotas had hurt the cash grain crop and taken a bite out of the farmer's income. Iowa feed men expressed the belief that many Iowa farmers feel they have to feed wet corn without supplementary protein, even though it is inefficient.

Amburgo Conference

PHILADELPHIA — Samuel M. Golden, president of Amburgo Co., Philadelphia, announced plans for a three-day annual sales conference meeting to be held in New York beginning March 29.

Mr. Golden said that sales personnel will be the guests of the company's major suppliers—firms that are basic manufacturers of feed additives. The meeting will afford suppliers the opportunity to brief Amburgo sales personnel with up-to-the-minute data on their products, Mr. Golden said. Also scheduled will be a series of discussions concerning new product developments from Amburgo's feed additive plant in Hope, Ind.

DEHY

(Continued from page 7)

The snowfall has been one of the heaviest on record and has broken records in many places for the past 30 day period. At Kansas City, where the Kaw flows into the Missouri, snowfall this week brought the season's total to 55 in., the second highest in weather bureau records. Twenty-one inches are still on the ground. Temperatures have been averaging about 20° below normal for this time of year and in some places have not been above 32° in the past month.

The latest government report on dehydrated alfalfa stocks showed a figure of 241,000 tons on hand as of Feb. 1. The average February to April disappearance is 202,000 tons, which suggests a carryover of about 40,000 tons at the beginning of the new season April 30. April production normally is not very large, but May production averages around 125,000 tons. With average dehydrated alfalfa consumption in April running about 70,000 in most years, a month's delay in new crop production could wipe out the carryover entirely, he said.

MARKETS

(Continued from page 2)

ing them was a long overdue necessity. Of course, a portion of the betterment could be attributed to the usual seasonal swing but, in addition, there has been a lot of weather to contend with. While January was unseasonably warm in many areas, February and March, so far, have been anything but ideal from that standpoint. Near record snow covering over many states has naturally had impact on the demand for commercial mixed feed. In addition, the hog-corn feeding ratio continues to show still further improvement.

Another favorable angle in the formula feed picture has been the fact that the past week's broadening in demand has spread over just about all lines, with the improvement applying to cattle, hog and poultry feeds alike.

South Central

Reports from feed manufacturers are uniformly more encouraging this week. Demand for formula feed has improved noticeably, due primarily to the effects of continued cold weather and snow covered pastures. Because of transportation difficulties dealers' stocks are either out of balance or worked down to a low level and rebuilding is going forward rapidly.

Best volume is coming from hog, cattle and dairy feeds but mixers are gratified to note a good movement over the entire list. A better than $16 hog market whets farmer interest in hog supplements.

Mills are operating on a strong five-day basis and there are some reports of an occasional Saturday operation.

Ohio Valley

The belated winter snow storms and near-zero temperatures that have plagued the Ohio Valley during the last month will be giving way to more seasonable weather. Naturally, this weather trend will be welcomed by the many thousands of area farmers who have been snowbound for a longer period than in many years.

With highways now opened throughout most of the valley, feed manufacturers again are resuming more normal delivery schedules, thus relieving feed shortages that, in scores of farm communities, had threatened to become serious. This more orderly feed movement is being reflected in improving sales of all varieties of animal feeds.

At the same time, prices for eggs and virtually all types of farm animals have been reported steady to higher this week at area stockyards and wholesale egg markets. Eggs advanced more than 2¢ doz. during the week. As a result, feed manufacturers are confident that a spring upward trend in sales is now well underway, and will be followed during the coming months with a sales volume that is quite likely to exceed that recorded last year.

Mountain States

Formula feed business in this area this week was reported to be an improvement over the previous week, and sales are also a little ahead of last year.

Turkeys seem to be moving in earlier this year, and turkey feed volume is increasing steadily. Also dealers are all having good cattle business at the present time because of weather conditions, therefore, cattle feed is the big end of the business now.

Pacific Northwest

There was a slight pick-up in feed business noted this week following the recent wintry weather and heavy rainfall in the valleys and further heavy snow cover in higher regions.

Supplemental feeding was at a full winter pace. Users reported shrinking inventories and the resultant replenishing took place. Dairy and cattle feeds continued the best movers, while poultry feeds sold in slightly larger volume due to cold, wet weather and the increased hatchings of broilers and turkey poults. Feeding continued to feature an unfavorable egg-feed ratio.

Moisture is adequate to plentiful for spring pastures and range feed, but warm temperatures are necessary for growth and soil drying-out. Supplies of irrigation water have been much improved by recent heavy snows in the higher regions. Cattle and sheep conditions were about average and feed supplies are generally adequate to complete the winter feedings.

Feed ingredient markets featured sharply higher wheat millfeed prices. There was good buying interest from domestic mixers and feeders to cover needs for the next 30-45 days. At the same time, around 2,000 tons of feed were sold for export to Japan, the bulk of which was for the May through September position. Strength at central western, eastern and California markets also provided support to local wheat millfeed markets.

Southeast

All types of feed business in the Southeast are reported as being fairly good with mills reporting their running time at about normal. The recent storms in the Southeast have caused considerable damage to the poultry industry, with large losses being sustained by many of the feed manufacturers. The broiler market remains practically unchanged at 18 to 19¢ lb. on the farm.

Demand for roughages continues good, and cottonseed hulls for immediate shipment has been reported as selling at $21 to $22 per ton, bulk, f.o.b. producing mills in the Mississippi Valley, which is a big increase over what mills were asking 30 days ago, with last half April being offered at $14 ton, bulk, f.o.b. shipping mills, with no buyers.

Many of the citrus processing plants are down, waiting for the Valencia oranges to be processed, which has caused a tightness in citrus pulp.

EGG FACTORY STARTED

SAFFORD, ARIZ. — Artesia Egg Factory has been started here by Boyd Overton.

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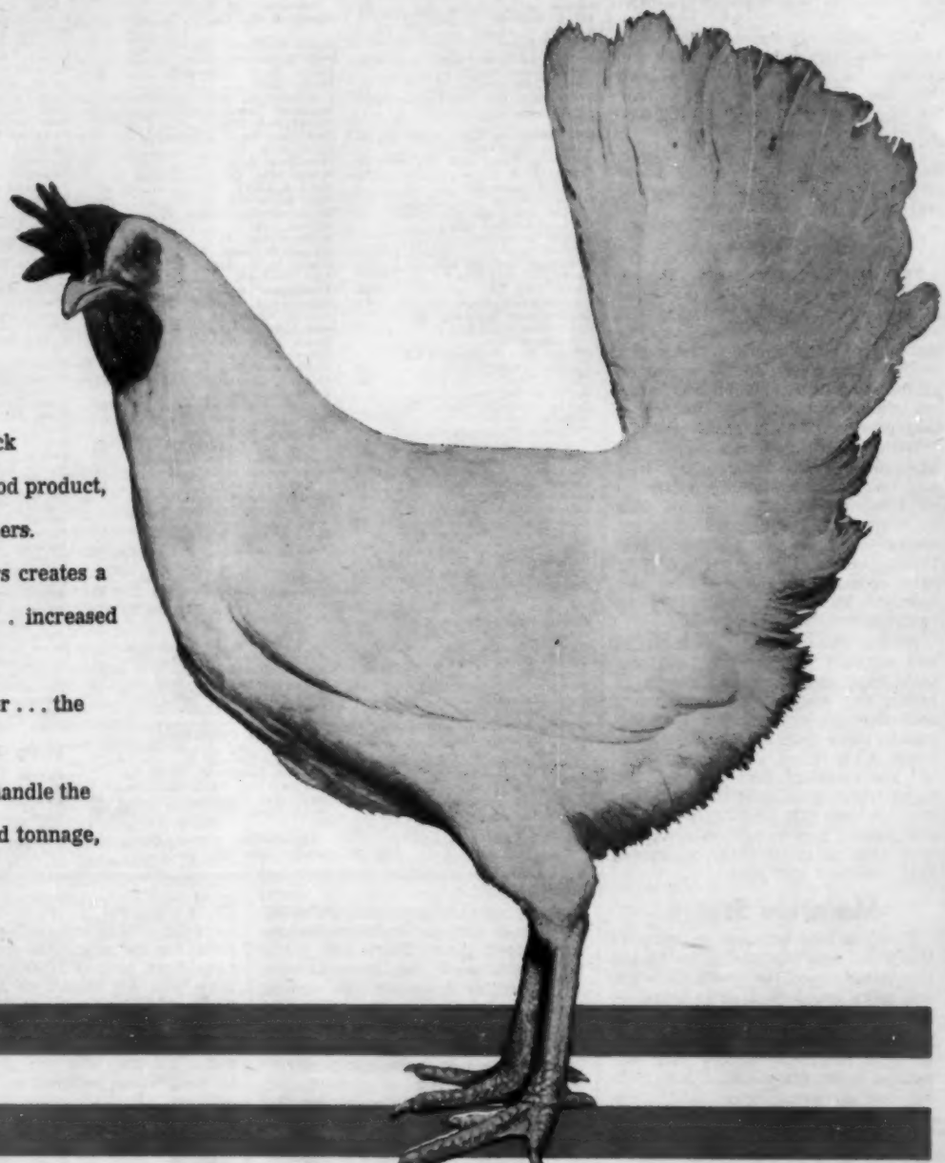

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